
FOR BUS COUPLER—A BAY

GIS BAY REF. = D130

- Required Materials for Interfacing Work :-
- New Terminal Block —X100 SH(23, 26, 14, 29A, 35, 37)
 - Aux. Relays VX3, VX4 SH(37, 35)
 - Additional Aux. Contact (N.C.) For MCBs F31, F21
 - " " " (N.O.) For MCBs F35, F25

132kV GIS LCC

SCHEMATIC DRAWINGS

SUBSTATION 8709

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	34	VOLTAGE TRANSFORMER (VT-2A)								10.JULY.12										

G	AS-BUILT		BY	DATE	SEC-COA 132kV/13.8kV SUBSTATION #8709		الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		SHEET NO. 01 of 38	
			DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG	LIST OF CONTENTS		National Grid SA		NEXT 01A	
			DATE STARTED	10.JULY.12	DATE COMPLETED		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY		CONTRACT NO.		INDEX	PLANT NO.
			OPRG. DEPT.		ENG. DEPT.		RIYADH SAUDI ARABIA		11131113/00		P	C421
	00	10.JULY.12	FOR APPROVAL						DRAWING NUMBER		CA -323948	
	REV. NO.	DATE	DESCRIPTION								REV. NO. 00	

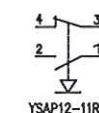
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	35	TERMINAL BOX OF VT-2A				10.JULY.12														
	35A	VT-2A																		
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	37A	VT-1A																		
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					DRAWN BY D.H.HAN CHECKED BY C.Y.HONG				LIST OF CONTENTS				National Grid sa		NEXT 02		REV. NO.			
					DATE STARTED 10.JULY.12 DATE COMPLETED				LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY				CONTRACT NO.		INDEX		PLANT NO.		DRAWING NUMBER	
	00				10.JULY.12 FOR APPROVAL				RIYADH SAUDI ARABIA				11131113/00		P		C421		CA -323948	
	REV. NO.				DATE				DESCRIPTION				OPRG. DEPT.		ENG. DEPT.				SEC-D (2004/10)	

1.LEGEND OF SYMBOLS

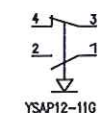
	M	MINIATURE CIRCUIT BREAKER		S	BREAK CONTACT GAS DENSITY METER		CT	CURRENT TRANSFORMER
	F	THERMAL RELAY		S	REED BREAKING CONTACT NOT OPERATED		VT	VOLTAGE TRANSFORMER
	S	LATE MAKE CONTACT		M	MOTOR OPERATED			
	S	EARLY BREAK CONTACT		-	EARTH			
	S	EARLY MAKE CONTACT		Y	OPERATING MAGNET COIL			
	S	LATE BREAK CONTACT		M	MOTOR AC 3 PHASE			
	S	CHANGE OVER SWITCH		T	RELAY SLOW OPERATING			
	S	PUSH BUTTON MAKE CONTACT		-	OP-AMP			
	S	PUSH BUTTON BREAK CONTACT		P	CONNECTING POINT CT'S			
	S	DOOR SWITCH		T	MAKE CONTACT DELAYED WHEN OPERATING			
	S	BLOCKING CONTACT		T	BREAK CONTACT DELAYED WHEN OPERATING			
	-	CHANGE OVER CONTACT OPERATED BY UNDER PRESSURE		T	MAKE CONTACT DELAYED WHEN RELEASING			
	S	CONTROL SWITCH		T	BREAK CONTACT DELAYED WHEN RELEASING			
	S	MAKE CONTACT GAS DENSITY METER						

2.DETAIL OF CONTROL SWITCHES

CLOSE CONTROL
PUSH BUTTON



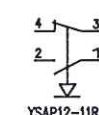
OPEN CONTROL
PUSH BUTTON



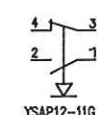
DETAIL OF CONTROL SWITCHES FOR DS/ES

CONTACT	OFF	ON	FUNCTION
1-2		X	OPEN
3-4	X		CLOSE

CLOSE CONTROL
PUSH BUTTON



OPEN CONTROL
PUSH BUTTON

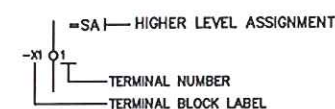


DETAIL OF CONTROL SWITCH FOR CB

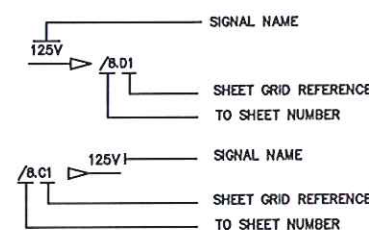
CONTACT	OFF	ON	FUNCTION
1-2		X	OPEN
3-4	X		CLOSE

3.DRAWING PRINCIPLES

PRESENTATION OF TERMINALS

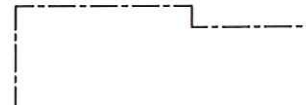


PRESENTATION OF SHEET TO SHEET REFERENCE

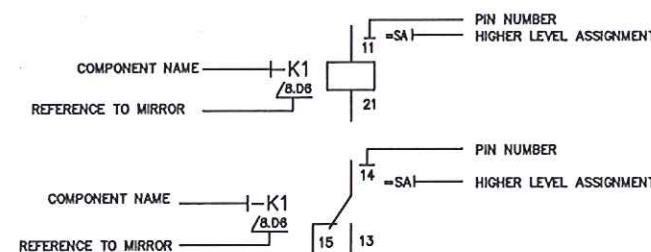


PRESENTATION ...

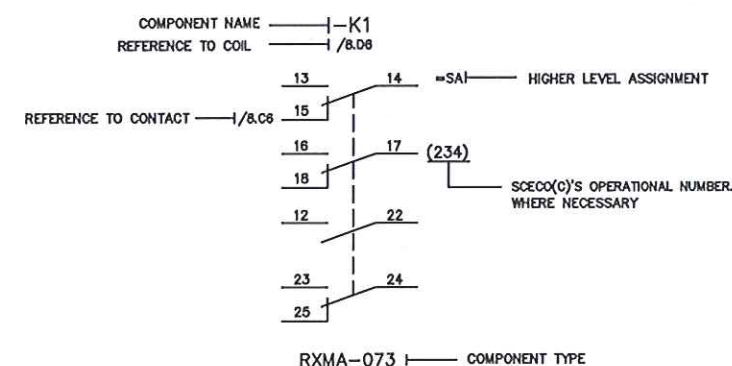
<=G1 HIGHER LEVEL ASSIGNMENT



PRESENTATION OF COMPONENTS



5. PRESENTATION OF THE MIRROR



	K	RELAY		-	DISCONNECTER WITH MOTOR MECHANISM			
	K	FLAG RELAY		-	EARTH SWITCH WITH MOTOR MECHANISM			
	Y	CLOSING OR TRIPPING COIL		-	CIRCUIT BREAKER			
	P	PULSE COUNTER		CT	CURRENT TRANSFORMER			
	K	LATCHING RELAY		-	CABLE HEAD			
	M	DC - MOTOR		-	BUSHING			
	-	ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH AUTOMATIC RESET		VTL	3 PHASE INDUCTIVE TYPE VOLTAGE TRANSFORMER			
	H	ANNUNCIATOR		-	TERMINAL (NORMAL TYPE)			
	-	OPTO - COUPLER		-	TERMINAL (KNIFE TYPE)			
	R	RESISTOR		IT	ISOLATING TERMINAL			
	D	RECTIFYING FUNCTION		-	BRIDGE OVER TERMINALS			
	H	SIGNAL LAMP & DISCREPANCY SWITCH LAMP		-	SEPARATE PLATE NEXT TO TERMINALS			
	E	FLUORESCENT LAMP		-	GAS GAUGE (GAS FILLED STATE)			
	H	DISCREPANCY SWITCH LAMP (FOR CB)						

AS-BUILT

BY

DATE

SEC-COA 132kV/13.8kV SUBSTATION #8709

LEGEND OF SYMBOLS

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		National Grid sa		SHEET NO. 02 of 38
CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER	NEXT 03
11131113/00	P	C421	CA -323948	REV. NO. 00

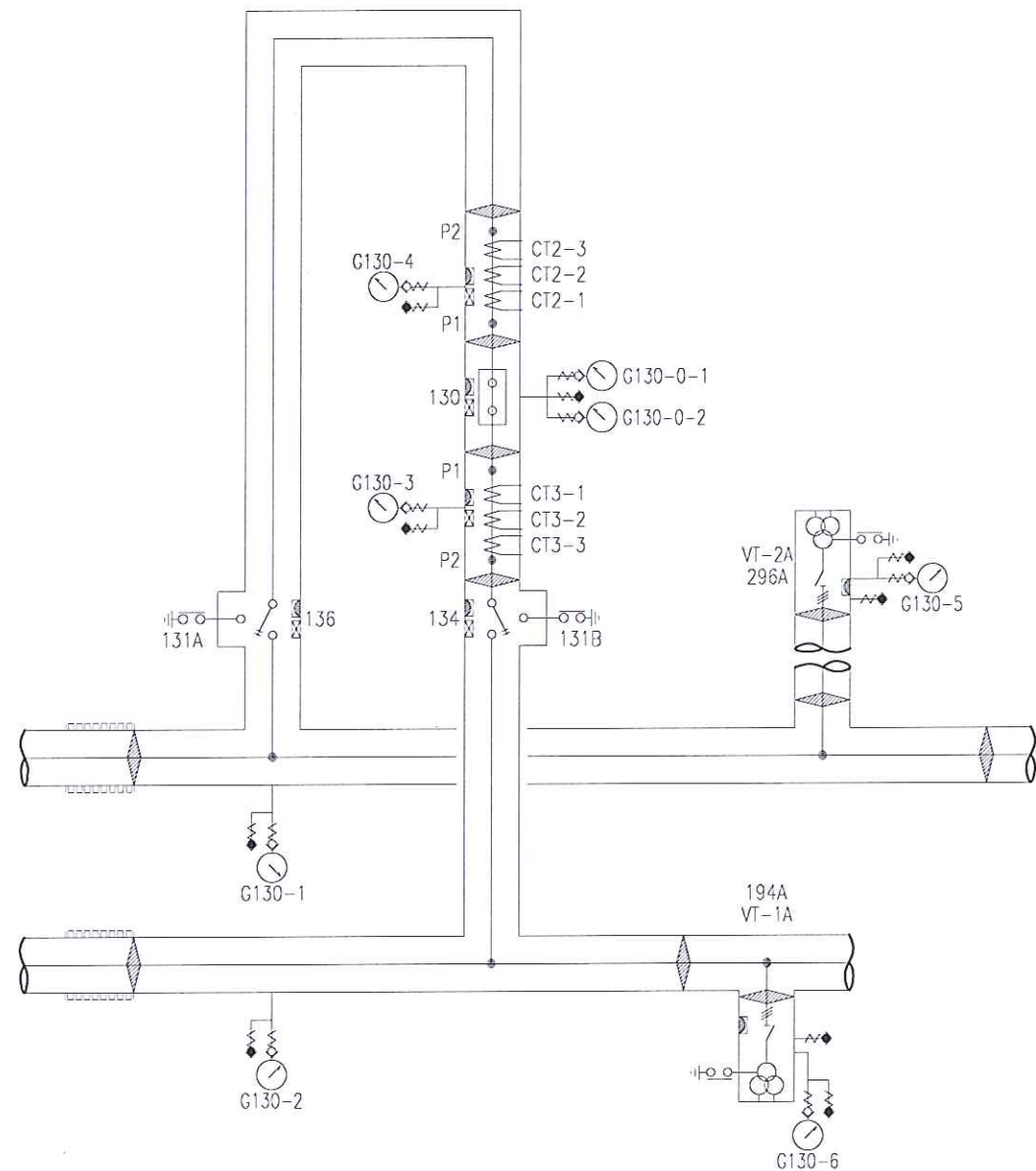
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BUS COUPLER-A (D130)



NOTE

1. RATED SF6 GAS PRESSURE
CB=600 kPa (at 20°C)
MAIN BUS=400 kPa (at 20°C)
OTHERS=400 kPa (at 20°C)

2. SETTING PRESSURE (at 20°C) OF DENSITY DETECTOR IS AS FOLLOWS

EQUIPMENT	SF6 GAS PRESSURE at 20°C degree	DESCRIPTION
CB	800 kPa	HIGH PRESSURE ALARM
	550 kPa	FIRST STAGE LEAK ALARM (REFILLING STAGE)
	500 kPa	SECOND STAGE LEAK ALARM (PRESSURE FAILURE)
OTHERS (DS,ES,CT VT,BUS,etc)	500 kPa	HIGH PRESSURE ALARM
	370 kPa	FIRST STAGE LEAK ALARM (REFILLING STAGE)
	350 kPa	SECOND STAGE LEAK ALARM (PRESSURE FAILURE)

* ACCURACY RANGE : ±1% at 20°C, ±2.5% at -20°C ~ 60°C

3. GAS SECTION NUMBER OF GAS MONITORING IS AS FOLLOWS

DESCRIPTION
GIS BAY No. $\frac{G \times X - X}{X}$ GAS COMPARTMENT No.

4. BURSTING PRESSURE OF PRESSURE RELIEF DEVICE

CB = 1500 kPa
OTHERS = 1000 kPa

LEGEND

SYMBOL	REMARK
	NON-RETURN VALVE (NORMALLY OPEN)
	NON-RETURN VALVE (NORMALLY CLOSED)
	GAS PRESSURE GAUGE
	INSULATION SPACER (GAS TIGHT)
	INSULATION SPACER (GAS THROUGH)
	ABSORBENT ZEORAM
	RUPTURE DISC

AS-BUILT	BY	DATE
00	10.JULY.12	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG
DATE STARTED	10.JULY.12	DATE COMPLETED	
OPRG. DEPT.		ENG. DEPT.	

SEC-COA 132kV/13.8kV SUBSTATION #8709
GAS SCHEME DIAGRAM
LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء	National Grid SA	SHEET NO. 03 of 38
CONTRACT NO. 11131113/00	INDEX P	PLANT NO. C421
DRAWING NUMBER CA -323948	REV. NO. 00	

1	2	3	4	5	6	7	8	9	10
		SER.NO.	DESIGNATION	DESCRIPTION	SHT.NO	QTY	TYPE	MAKER	ORDERING INFORMATION
A		1	-F0	MANIATURE CIRCUIT BREAKER, DOUBLE POLE 16A, SHUNT TRIP FOR ES/DS MOTOR PROTECTION	/14.A7	1	S202P-K16+S2C-A2 +S2C-H6R	ABB	2CES 282 001 R0467 2CES200909R0002 + 2CES200912R0001
		2	-F1	MINIATURE CIRCUIT BREAKER,1NO+1NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR BUSBAR DISCONNECTOR WITH EARTH SWITCH(134/131B) MOTOR DC SUPPLY	/14.A7	1	S202P-K6+S2C-H6R +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0377 + 2CES200912R0001 *3
		3	-F2	MINIATURE CIRCUIT BREAKER,1NO+1NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR BUSBAR DISCONNECTOR WITH EARTH SWITCH(136/131A) MOTOR DC SUPPLY	/14.A8	1	S202P-K6+S2C-H6R +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0377 + 2CES200912R0001 *3
B		4	-F5	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR DS / ES DC CONTROL SUPPLY FOR FRONT BUSBAR	/14.A9	1	S202P-K6 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0377 + 2CES200912R0001 *2
		5	-F8	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR SIGNALING ALARMS DC SUPPLY	/14.B7	1	S202P-K6 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0467 + 2CES200912R0001 *2
		6	-F9	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 16A FOR CB(130) PUMP MOTOR DC CONTROL SUPPLY	/14.B7	1	S202P-K16 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0467 + 2CES200912R0001 *2
C		7	-F10	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 16A FOR CB(130) ANTPUMPING DC CONTROL SUPPLY	/14.B8	1	S202P-K16 +S2C-H6R	ABB	2CES 282 001 R0467 + 2CES200912R0001
		8	-F11	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 16A FOR CB(130) CLOSING / OPENING OPERATIONS DC SUPPLY	/14.B9	1	S202P-K16 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0467 + 2CES200912R0001 *2
		9	-F12	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 16A FOR CB(130) TRIP CIRCUIT 1 DC SUPPLY	/14.B9	1	S202P-K16 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0467 + 2CES200912R0001 *2
D		10	-F13	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 16A FOR CB(130) TRIP CIRCUIT 2 DC SUPPLY	/14.B10	1	S202P-K16 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0467 + 2CES200912R0001 *2
		11	-F14	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR ANNUNCIATOR AC 220V SUPPLY	/13.D2	1	S202P-K6 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0377 + 2CES200912R0001 *2
		12	-F15	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR LCC LIGHTING AC 220V SUPPLY	/13.D3	1	S202P-K6 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0377 + 2CES200912R0001 *2
E		13	-F16	MINIATURE CIRCUIT BREAKER,1NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR POWER SOCKET AC 127V SUPPLY	/13.F2	1	S202P-K6 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0377 + 2CES200912R0001 *2
		14	-F50	THERMAL RELAY FOR CB SPRING CHARGING MOTOR. SETTING RANGE 10A (SET:8.5A)	/17.F8	1	MT	LS	MT-L8.5
		15	-E1,-E2	FLUORESCENCE LAMP. AC 220V. 20W	/13.D3/13.D4	2	-	GENERAL	-
F		16	-H1	ANNUNCIATOR FOR LCC AND SIGNALING TO CONTROL ROOM VOLTAGE 125VDC & 220VAC , SILENCE / ACKNOWLEDGE / RESET OPTIONS, TESTING OPTION. DELAY OPTIONS 5ms TO 5s , 40 INPUT/OUTPUT	/32.A4	1	UC725	RTK	UC625-40YW-HH-024-R-W3
		17	-H2	ANNUNCIATOR FOR LCC AND SIGNALING TO CONTROL ROOM VOLTAGE 125VDC & 220VAC , SILENCE / ACKNOWLEDGE / RESET OPTIONS, TESTING OPTION. DELAY OPTIONS 5ms TO 5s , 32 INPUT/OUTPUT	/32.C4	1	UC725	RTK	UC625-32YW-HH-024-R-W3
		18	-H40	SIGNALING LAMP FOR LOCAL CONTROL,LED TYPE,YELLOW LAMP,WHITE CAP,25# DC 125V/24V	/15.C2	1	KGPH	KG AUTO	KGPH-D1Y/W
G		19	-K2	SIGNAL FLAG RELAY WITH ZERO VOLTAGE FOR DC VOLTAGE SUPPLY SUPERVISION 1NO+2NC AUXILIARY CONTACT, SELF RESET	/14.C7	1	RXSFI	ABB	RK 271 019-AN
		20	-K3	SIGNAL FLAG RELAY WITH ZERO VOLTAGE FOR DC VOLTAGE SUPPLY SUPERVISION 1NO+2NC AUXILIARY CONTACT, SELF RESET	/14.C9	1	RXSFI	ABB	RK 271 019-AN
		21	-K6,-K7	AUXILIARY RELAY FOR LAMP TEST, POWER CONSUMPTION 5W, DC 125V, 4NO CONTACT WITH 4NO AUXILIARY CONTACT	/16.E1	1	MR	LS	MR-4D(40)+UA-4(40)
H		22	-K8	SIGNAL FLAG RELAY WITH ZERO VOLTAGE FOR POWER SUPPLY 1NO+2NC AUXILIARY CONTACT, SELF RESET	/26.F10	1	RXSFI	ABB	RK 271019-AN
		23	-K9	SIGNAL FLAG RELAY WITH ZERO VOLTAGE FOR POWER SUPPLY 1NO+2NC AUXILIARY CONTACT, SELF RESET	/24.F4	1	RXSFI	ABB	RK 271019-AN
		24	-K11	CONTACTOR FOR BUSBAR DISCONNECTOR (134) CONTROLLING, CLOSE OPERATION, DC 125V, 4NO+1NC CONTACT WITH 3NO+1NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/18.F8	1	MC	LS	MC-9b+UA-4(31)
I		25	-K12	CONTACTOR FOR BUSBAR DISCONNECTOR (134) CONTROLLING, OPEN OPERATION DC 125V, 4NO+1NC CONTACT WITH 3NO+1NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/18.F9	1	MC	LS	MC-9b+UA-4(31)
		26	-K14C -K14D	RELAY FOR MULTIPLING AUXILIARY CONTACT OF EQUIPMENT (BUSBAR DISCONNECTOR,134) TWO IDENTICAL STABLE POSITION 6NO+2NC CONTACT, POWER CONSUMPTION 5W.	/20.C9	2	MR	LS	MR-4D(31)+UA-4(40)
		27	-K21	CONTACTOR FOR MAINTENANCE EARTH SWITCH (131B) CONTROLLING, CLOSE OPERATION, DC 125V, 4NO+1NC CONTACT WITH 2NO+2NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/19.F9	1	MC	LS	MC-9b+UA-4(22)
J		28	-K22	CONTACTOR FOR MAINTENANCE EARTH SWITCH (131B) CONTROLLING, OPEN OPERATION, DC 125V, 4NO+1NC CONTACT WITH 2NO+2NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/19.F10	1	MC	LS	MC-9b+UA-4(22)
		29	-K31	CONTACTOR FOR BUSBAR DISCONNECTOR (136) CONTROLLING, CLOSE OPERATION, DC 125V, 4NO+1NC CONTACT WITH 3NO+1NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/20.F8	1	MC	LS	MC-9b+UA-4(31)

AS-BUILT

BY

DATE

SEC-COA 132kV/13.8kV SUBSTATION #8709

LIST OF APPARATUS, LCC

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid SA	
CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	04 of 38
11131113/00	P	C421	CA -323948	NEXT	05
				REV. NO.	00

SEC-D (2004/10)

EDMS

VECTOR

SECE00

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	1	2	3	4	5	6	7	8	9	10
			SER.NO.	DESIGNATION	DESCRIPTION	SHT.NO	QTY	TYPE	MAKER	ORDERING INFORMATION
A			30	-K32	CONTACTOR FOR BUSBAR DISCONNECTOR (136) CONTROLLING, OPEN OPERATION DC 125V, 4NO+1NC CONTACT WITH 3NO+1NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/20.F8	1	MC	LS	MC-9b+UA-4(31)
			31	-K34C/-K34D	RELAY FOR MULTIPLING AUXILIARY CONTACT OF EQUIPMENT (BUSBAR DISCONNECTOR,136) TWO IDENTICAL STABLE POSITION 6NO+2NC CONTACT, POWER CONSUMPTION 5W.	/20.C7	2	MR	LS	MR-4D(31)+UA-4(40)
			32	-K41	CONTACTOR FOR MAINTENANCE EARTH SWITCH (131A) CONTROLLING, CLOSE OPERATION, DC 125V, 4NO+1NC CONTACT WITH 2NO+2NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/20.F9	1	MC	LS	MC-9b+UA-4(22)
			33	-K42	CONTACTOR FOR MAINTENANCE EARTH SWITCH (131A) CONTROLLING, OPEN OPERATION, DC 125V, 4NO+1NC CONTACT WITH 2NO+2NC AUXILIARY CONTACT, POWER CONSUMPTION 5W	/20.F10	1	MC	LS	MC-9b+UA-4(22)
B			34	-K51/-K52	AUXILIARY RELAY FOR CONTROL CIRCUIT OF CIRCUIT BREAKER (130), POWER CONSUMPTION 5W, DC 125V,2NO+2NC	/22.F2	2	MR	LS	MR-4D(22)
			35	-K43	AUXILIARY RELAY FOR CHECKING MOTOR OVER-TIME RUNNING (ABOVE 15MIN), POWER CONSUMPTION 5W, DC 125V, 2NO+2NC	/17.F7	1	MR	LS	MR-4D(22)
			36	-K44	CONTACTOR FOR MOTOR OF CB,POWER CONSUMPTION 5W, DC 125V,4NO+1NC	/17.F8	1	MR	LS	MC-22
			37	-K37	AUXILIARY RELAY FOR ANTI-PUMPING OF CIRCUIT BREAKER (130), POWER CONSUMPTION 5W, DC 125V, 2NO+2NC	/22.F2	1	HMT	HYUNDAI	HMT22R(22)
			38	-K37A	AUXILIARY RELAY FOR SYNCHRO CHECK, POWER CONSUMPTION 5W, DC 125V, 2NO+2NC.	/23.E3	1	MR	LS	MR-4D(22)
			39	-K45	AUXILIARY RELAY FOR CB GAS PRESSURE COLSING LOCKOUT(550 kPa) POWER CONSUMPTION 5W, DC 125V, 2NO+2NC	/25.E5	1	MR	LS	MR-4D(22)+UA-2(02)
C			40	-K46	AUXILIARY RELAY FOR CB GAS PRESSURE TRIPPING LOCKOUT (TRIP COIL1, 500 kPa) POWER CONSUMPTION 5W DC 125V, 2NO+2NC	/22.F7	1	MR	LS	MR-4D(22)+UA-2(02)
			41	-K47	AUXILIARY RELAY FOR CB GAS PRESSURE TRIPPING LOCKOUT (TRIP COIL2, 500 kPa) POWER CONSUMPTION 5W DC 125V, 2NO+2NC	/22.F9	1	MR	LS	MR-4D(22)+UA-2(02)
			42	-K33	AUXILIARY RELAY FOR CONTROL CIRCUIT OF CIRCUIT BREAKER (130), POWER CONSUMPTION 5W, DC 125V,2NO+2NC	/22.F3	1	MR	LS	MR-4D(22)
			43	-K48C -K49C -K48D	LATCHING RELAY FOR MULTIPLING AUXILIARY CONTACT OF EQUIPMENT (CIRCUIT BREAKER,130)TWO IDENTICAL STABLE POSITION 6NO+2NC CONTACT, POWER CONSUMPTION 3W.	/23.C7	3	MR	LS	MR-4D(31)+UA-4(40)
			44	-DS5	DOOR LIMIT SWITCH FOR LCC ILLUMINATION, 250V, 15A, 1NO+1NC	/13.E3	1	YSR	YONG SUNG	YSR1215GW-B
			45	-DS6	DOOR LIMIT SWITCH FOR LCC ILLUMINATION, 250V, 15A, 1NO+1NC	/13.E4	1	YSR	YONG SUNG	YSR1215GW-B
			46	-S40	OFF/LOCAL/BCU/REMOTE SELECTOR SWITCH, R-TYPE, MANUAL-RETURN	/15.A10	1	A14 RK4257	KRAUS&HAMER	—
D			47	-S41	PUSH BUTTON SWITCH FOR LAMP TEST, 1NO+1NC	/15.D2	1	KGF	KG AUTO	KGFH-CM18K
			48	-S42	PUSH BUTTON SWITCH FOR LONG RUN ALARM STOP OF SPRING CHARGING MOTOR, 1NO+1NC	/17.E9	1	KGF	KG AUTO	KGFH-CM1R
			49	-S43	CHANGEOVER SWITCH FOR LOCK-USE OF CB MOTOR, KNOB-TYPE, MANUAL-RETURN	/17.E9	1	CHR10	KRAUS&HAMER	RK 6754
			50							
			51							
			52							
E			53							
			54							
			55	-K1M	CONTACTOR FOR BUSBAR DISCONNECTOR WITH MAINTENANCE ES(134/131B) MOTOR OPERATION, DC 125V, 3NO+1NC CONTACT, POWER CONSUMPTION 3W	/17.E2	1	GMD	LS	GMD-9M
			56	-K2M	CONTACTOR FOR BUSBAR DISCONNECTOR WITH MAINTENANCE ES(136/131A) MOTOR OPERATION, DC 125V, 3NO+1NC CONTACT, POWER CONSUMPTION 3W	/17.E4	1	GMD	LS	GMD-9M
			57	-S45	3POSITION SWITCH MANUAL OPERATION SELECTION (DS-LOCK-ES) KEY SWITCH MANUAL RETURN	/19.F1	1	CH16	KRAUS&HAMER	RK-8350
			58	-33T/-34T	ON DELAY TIMER, DC 125V, 3 TO 30 MIN. 2NO+2NC (SETTING TIME : 1 min)(A MODE)	/17.F10/22.E4	2		OMRON	H3CR-A8
F			59	-X0,-X1	TERMINAL BLOCKS FOR AC POWER SUPPLY	/13, 15	-	URTK/S	PHOENIX	0311087
			60	-X2,-X3	TERMINAL BLOCKS FOR DC POWER SUPPLY	/13, 14	-	URTK/S	PHOENIX	0311087
			61	-X4,-X4A	TERMINAL BLOCKS FOR LOCAL INDICATIONS	/15, 34, 36	-	USST4	PHOENIX	3070338
			62	-X5,-X6,-X8A-X7	TERMINAL BLOCKS FOR BUSBAR DISCONNECTOR WITH MAINTENANCE EARTH SWITCH (134/131B)	17 TO 25	-	USST4	PHOENIX	3070338
			63	-X8,-X9,-X9A-X10	TERMINAL BLOCKS FOR BUSBAR DISCONNECTOR WITH MAINTENANCE EARTH SWITCH (136/131A)	17 TO 25	-	USST4	PHOENIX	3070338
			64	-X11,-X12,-X12A	TERMINAL BLOCKS FOR CIRCUIT BREAKER (130)	17 TO 25	-	USST4	PHOENIX	3070338
			65	-X21,-X22	TERMINAL BLOCKS WITH KNIFE TYPE TERMINALS FOR ANNUNCIATOR INPUT SIGNALS ANNUNCIATOR SIDE	/27, 28	-	UT4-MT	PHOENIX	3046139
G	AS-BUILT		BY _____		DATE _____		SEC-COA 132kV/13.8kV SUBSTATION #8709			
			DRAWN BY D.H.HAN		CHECKED BY C.Y.HONG		LIST OF APPARATUS, LCC			
			DATE STARTED 10.JULY.12		DATE COMPLETED _____		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY			
			PRG. DEPT. _____		ENG. DEPT. _____		RIYADH SAUDI ARABIA			
			00		10.JULY.12		FOR APPROVAL		REV. NO.	
			DATE		DESCRIPTION		CONTRACT NO.		INDEX	
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							C421		CA -323948	
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SHEET NO.	05 of 38
NEXT	06
REV. NO.	00

SEC-D (2004/10)

EDMS VECTOR SECE00

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1	2	3	4	5	6	7	8	9	10
		SER.NO.	DESIGNATION	DESCRIPTION	SHT.NO	QTY	TYPE	MAKER	ORDERING INFORMATION
A		66	-X23	TERMINAL BLOCKS WITH KNIFE TYPE TERMINAL (FMK INDICATIONS)	/21	-	UT4-MT	PHOENIX	3046139
		67	-X24	TERMINAL BLOCKS WITH KNIFE TYPE TERMINALS FOR ANNUNCIATOR GROUPEED OUTPUT SIGNALS	/29	-	UT4-MT	PHOENIX	3046139
		68	-X26A	BOLT CONNECTING TERMINAL BLOCK FOR CT IN LCC.	/32, 33	-	OTTA6-T-P/P	PHOENIX	0790462
		69	-X26B	BOLT CONNECTING TERMINAL BLOCK FOR CT IN LCC.	/32, 33	-	OTTA6	PHOENIX	0790433
		70	-X61A,-X63A	TERMINAL BLOCKS FOR MCB TRIP CHECK	/35, 37	-	USST4	PHOENIX	3070338
B		71	OUTLET	220V, 15A	/13.C10	1	-	LEGRAND	-
		72	-K201,-K202 -K203,-K204	AUXILIARY RELAY FOR DS & ES OPERATION INTERLOCK, POWER CONSUMPTION 5W, DC 125V, 4NC.	/16.E2	4	MR	LS	MR-4D(04)+UA-4(31)
		73	-TEL	DEK301-6C. TELEPHONE JACK.	/13.C9	1	DEK301-6C	DAE-EUN	DEK301-6C
		74	-XT	TERMINAL BLOCKS FOR TELEPHONE JACK	/13.C9	1	USST4	PHOENIX	3070338
		75	-T14/-T34 -T48	ON DELAY TIMER, DC 125V, 2NO+2NC, 1 TO 10 sec. (SETTING TIME:5sec)	/20, 23	3	H3CR	OMRON	H3CR-A8
		76	TH	THERMOSTAT -10~50DEG.C	/13.E5	1	PLS-050A	PACIFIC	-
		77	HT	AL-MOLD HEATER, 500OHM, MAX 200W	/13.D5	1	RSHT-200	RARA	-
		78	HST	HUMIDISTAT FOR PANEL HUMIDITY CONTROL, 30~80% RH	/13.D6	1	H615A	HONEY WELL	-
		79	-R2,R3	RESISTORS FOR MOTOR OPERATION MECHANISM, 100Kohm	/17	3	IRH	RARA	IRH-100
		80	-T1	ON DELAY TIMER, DC 125V, 2NO+2NC, 1 TO 10 sec. (SETTING TIME:5sec)(A MODE)	/16.E5	1	H3CR	OMRON	H3CR-A8
C		81	-X61,62,63,64	TERMINAL BLOCKS FOR VOLTAGE TRANSFORMER	/34 TO 38	-	URTK/S	PHOENIX	0311087
		82	-X40, X41	TERMINAL BLOCKS WITH KNIFE TYPE TERMINALS FOR BCU	16 TO 27	-	UT4-MT	PHOENIX	3046139
		83	-F21/-F31	MINIATURE CIRCUIT BREAKER, 1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001
		84	-F22/-F32	MINIATURE CIRCUIT BREAKER, 1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001
		85	-F23/-F33	MINIATURE CIRCUIT BREAKER, 1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001
		86	-F24/-F34	MINIATURE CIRCUIT BREAKER, 1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001
		87	-F25/-F35	MINIATURE CIRCUIT BREAKER, 1NC+1NO AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001
		88	-F26/-F36	MINIATURE CIRCUIT BREAKER, 1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001
		89	-F27/-F37	MINIATURE CIRCUIT BREAKER, 1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001
		90	-F28/-F38	MINIATURE CIRCUIT BREAKER, 1NC+1NO AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35,37	2	S203P-K2NA +S2C-H6R+S2C-H6R	ABB	2CES 281 103 R0277 + 2CES200912R0001 *2
D		91							
		92	294A,196A	SEMAPHORE INDICATOR FOR CLOSE/OPEN CONDITION OF ISOLATING DEVICE (294A,196A) 25ø. DC 125V	/15.F9,F6	1	SFSR-30S-DC125V-88(ROUND)	FUJI	-
		93	-BCX1	AUXILIARY RELAY FOR OPEN BLOCKING FOR CIRCUIT BREAKER(130) POWER CONSUMPTION 5W, DC 125V, 2NO+2NC	/24.F1	1	MR	LS	MR-4D(22)+AU4(04)
		94	-BCX2	AUXILIARY RELAY FOR OPEN BLOCKING FOR CIRCUIT BREAKER(120,130) POWER CONSUMPTION 5W, DC 125V, 2NO+2NC	/24.F2	1	MR	LS	MR-4D(22)+UA-2(02)
		95	-K223	AUXILIARY RELAY FOR OPEN BLOCKING FOR CIRCUIT BREAKER(120,130,230) POWER CONSUMPTION 5W, DC 125V, 4NO WITH AUXILIARY CONTACT, 3NO+1NC.	/20.E3	1	MR	LS	MR-4D(40)+UA-4(31)
		96	-X15,-X15A	TERMINAL BLOCKS FOR OPEN BLOCKING FOR CIRCUIT BREAKER	/35A,37A	-	USST4	PHOENIX	3070338
		97	-FV1/-FV11	MINIATURE CIRCUIT BREAKER, 1NO+1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35A,37A	2	S201P-K2 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0277 + 2CES200912R0001 *2
		98	-FV2/-FV12	MINIATURE CIRCUIT BREAKER, 1NO+1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35A,37A	2	S201P-K2 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0277 + 2CES200912R0001 *2
		99	-FV3/-FV13	MINIATURE CIRCUIT BREAKER, 1NO+1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35A,37A	2	S201P-K2 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0277 + 2CES200912R0001 *2
		100	-FV4/-FV14	MINIATURE CIRCUIT BREAKER, 1NO+1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35A,37A	2	S201P-K2 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0277 + 2CES200912R0001 *2
E		101	-FV5/-FV15	MINIATURE CIRCUIT BREAKER, 1NO+1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35A,37A	2	S201P-K2 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0277 + 2CES200912R0001 *2
		102	-FV6/-FV16	MINIATURE CIRCUIT BREAKER, 1NO+1NC AUXILIARY CONTACT, SINGLE POLE 2A WITH DISCONNECTING NEUTRAL	/35A,37A	2	S201P-K2 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0277 + 2CES200912R0001 *2
F									
G									

AS-BUILT		BY _____	DATE _____
00	10.JULY.12	FOR APPROVAL	
REV. NO.	DATE	DESCRIPTION	

DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG
DATE STARTED	10.JULY.12	DATE COMPLETED	
OPRG. DEPT.		ENG. DEPT.	

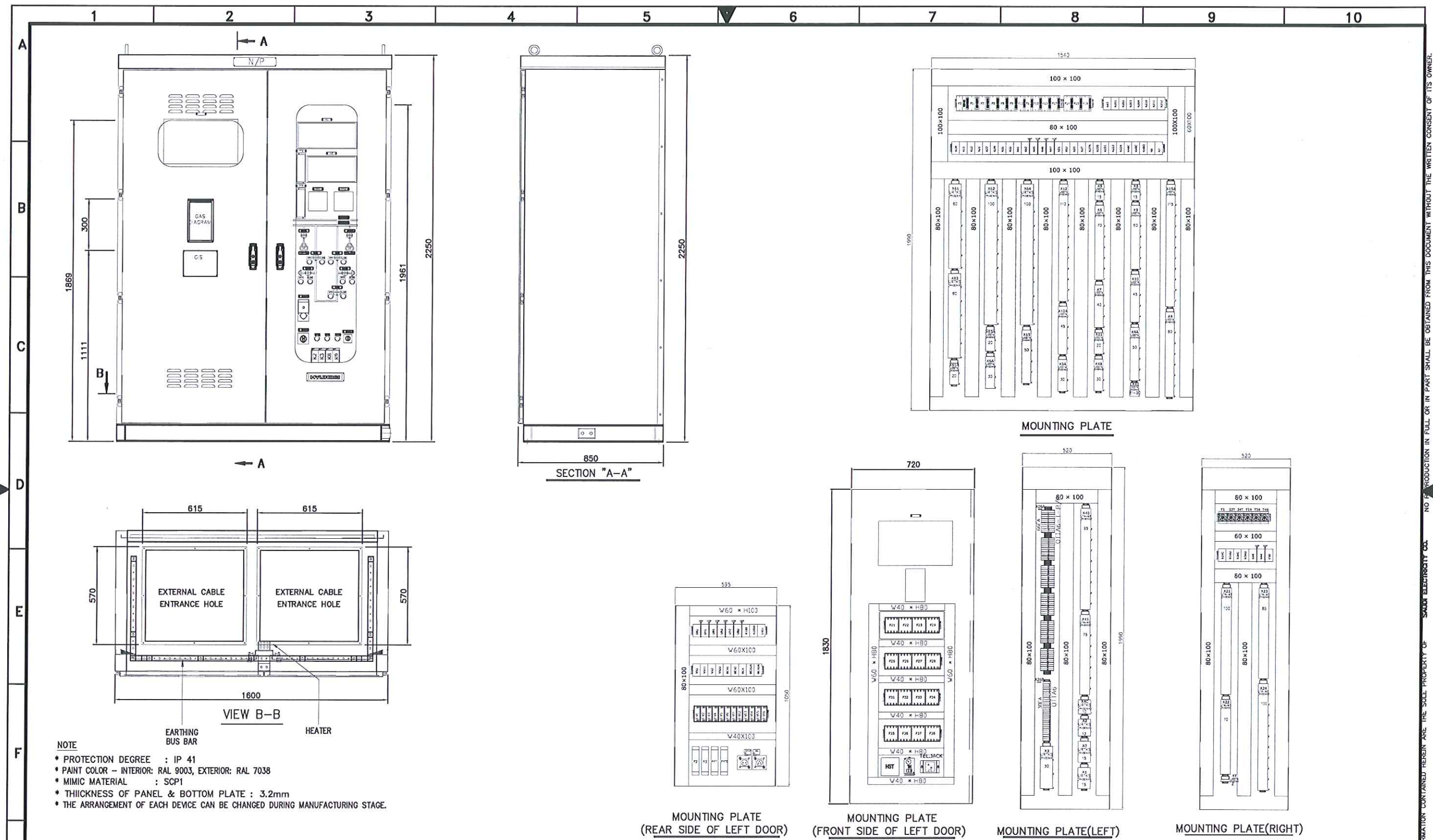
SEC-COA 132kV/13.8kV SUBSTATION #8709	
LIST OF APPARATUS, LCC	
LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY	
RIYADH	SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		National Grid sa		SHEET NO. 06 of 38	
CONTRACT NO.		INDEX	PLANT NO.	DRAWING NUMBER	REV. NO.
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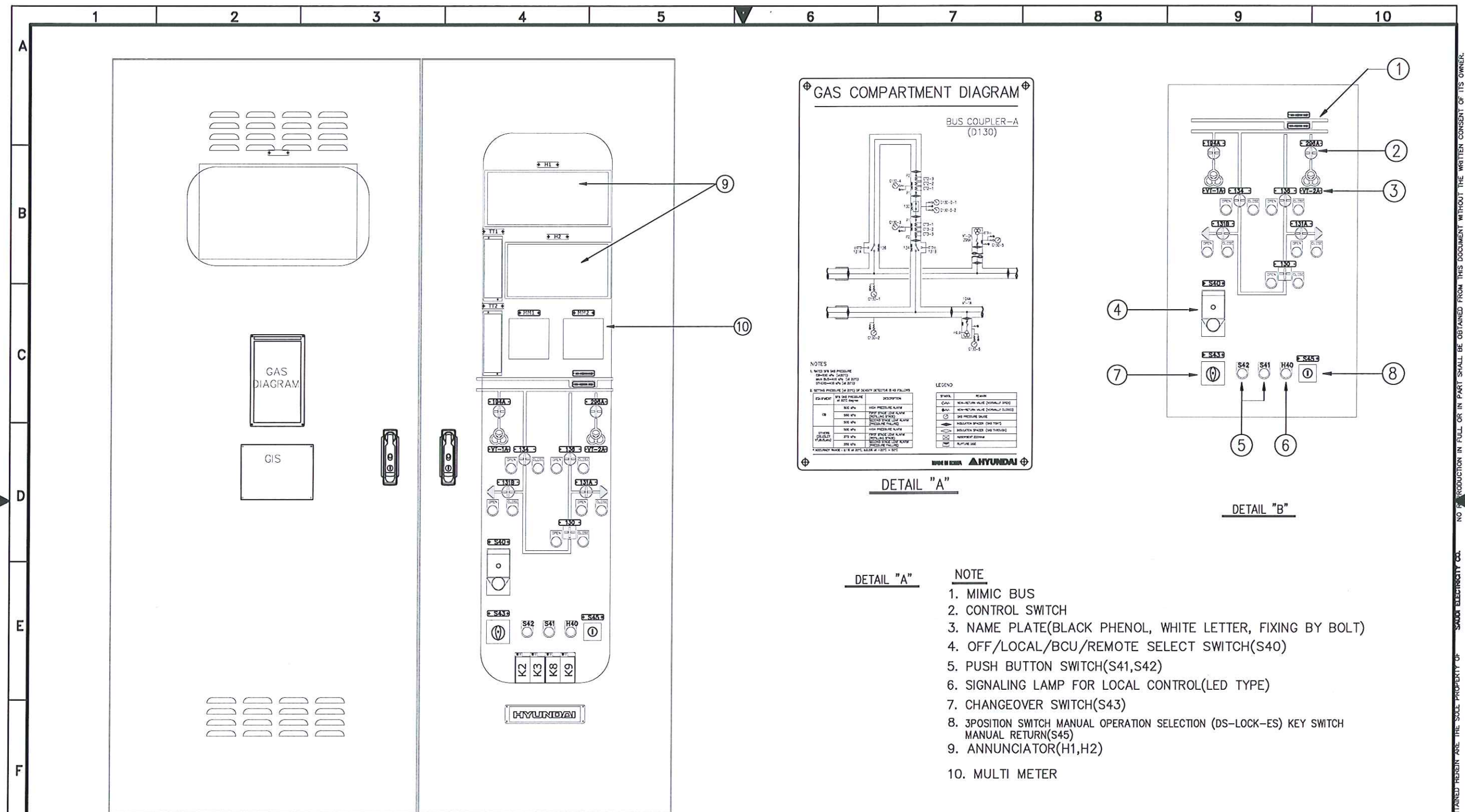
	1	2	3	4	5	6	7	8	9	10
A			SER.NO.	DESIGNATION	DESCRIPTION	SHT.NO	QTY	TYPE	MAKER	ORDERING INFORMATION
			103	-VX1	AUXILIARY RELAY FOR VT2A MCB TRIP CHECK POWER CONSUMPTION 5W, DC 125V, 2NO+2NC	/34.D8	1	MR	LS	MR-4D(22)
			104	-UR1	AUXILIARY RELAY FOR VT2A ENERGIZING CONDITION(AC 70V) POWER CONSUMPTION 5W, AC 70V, 2NO+2NC	/34.F9	1	MR	LS	MR-4(22)
			105	-UY1	AUXILIARY RELAY FOR VT2A ENERGIZING CONDITION(AC 70V) POWER CONSUMPTION 5W, AC 70V, 2NO+2NC	/34.F10	1	MR	LS	MR-4(22)
			106	-UB1	AUXILIARY RELAY FOR VT2A ENERGIZING CONDITION(AC 70V) POWER CONSUMPTION 5W, AC 70V, 2NO+2NC	/34.F10	1	MR	LS	MR-4(22)
			107							
			108							
			109							
B			110	-VX2	AUXILIARY RELAY FOR VT1A MCB TRIP CHECK POWER CONSUMPTION 5W, DC 125V, 2NO+2NC	/34.D8	1	MR	LS	MR-4D(22)
			111	-UR2	AUXILIARY RELAY FOR VT1A ENERGIZING CONDITION(AC 70V) POWER CONSUMPTION 5W, AC 70V, 2NO+2NC	/34.F9	1	MR	LS	MR-4(22)
			112	-UY2	AUXILIARY RELAY FOR VT1A ENERGIZING CONDITION(AC 70V) POWER CONSUMPTION 5W, AC 70V, 2NO+2NC	/34.F10	1	MR	LS	MR-4(22)
			113	-UB2	AUXILIARY RELAY FOR VT1A ENERGIZING CONDITION(AC 70V) POWER CONSUMPTION 5W, AC 70V, 2NO+2NC	/34.F10	1	MR	LS	MR-4(22)
			114	-MM1, MM2	MULTI-FUNCTION METER VOLTAGE AC 85~265V, DC 100~300V, 50/60Hz, INPUT 0~347V, 1~10A	/32.E4, /36.F6	2	ION	SCHENIDER	ION 6200
			115							
C			116	-K48	AUXILIARY RELAY FOR SPRING CHARGE MOTOR THERMAL FAULT DC125V, 2NO+2NC CONTACT	/17.F3	1	MR	LS	MR-4D(22)
			117	-K220,-K221	AUXILIARY RELAY FOR INTERLOCK BUSBAR DISCONNECTOR. POWER CONSUMPTION 5W, DC 125V, 4NO WITH 4NO AUXILIARY CONTACT.	/20.C2	2	MR	LS	MR-4D(40)+UA-4(40)
			118	-K211	AUXILIARY RELAY FOR DS & ES OPERATION INTERLOCK, POWER CONSUMPTION 5W, DC 125V, 4NO WITH 4NO AUXILIARY CONTACT.	/16.E6	1	MR	LS	MR-4D(40)+UA-4(40)
			119	-K210,-K212	AUXILIARY RELAY FOR DS & ES OPERATION INTERLOCK, POWER CONSUMPTION 5W, DC 125V, 4NO.	/16.E7	2	MR	LS	MR-4D(40) /MR-4D(22)+UA-4(40)
			120							
			121							
D			122	-BCU	BAY CONTROL UNIT, REC670	/21.21A,21B,21C	1	REC	ABB	REC670
			123	-REC.	AC 127V,15A	/13.E4	1		LEGRAND	
			124	-F17	MINIATURE CIRCUIT BREAKER,2NC AUXILIARY CONTACT, DOUBLE POLE 6A FOR BCU DC SUPPLY	/14.F6	1	S202P-K6 +S2C-H6R+S2C-H6R	ABB	2CES 282 001 R0377 + 2CES200912R0001 *2
			125		(BLANK)					
			126		(BLANK)					
E			112	-S111,S121,S131,S141 -S151	PUSH BUTTON SWITCH FOR CB & DS & ES OPEN COMMAND WITH SELF-RETURN, 1NO+1NC	/18,19,23	5	KGF	KG AUTO	KGFH-CM1G
			113	-S112,S122,S132,S142 -S152	PUSH BUTTON SWITCH FOR CB & DS & ES CLOSE COMMAND WITH SELF-RETURN, 1NO+1NC	/18,19,23	5	KGF	KG AUTO	KGFH-CM1R
			114	-L10	SEMAPHORE INDICATOR FOR BUSBAR DISCONNECTOR (134) WITH LED TYPE, RED(WHEN CLOSE), GREEN(WHEN OPEN)	/15.C4	1	AD16	APT	AD16-22W/G
			115	-L11	SEMAPHORE INDICATOR FOR MAINTENANCE EARTH SWITCH (131B) WITH LED TYPE, RED(WHEN CLOSE), GREEN(WHEN OPEN)	/15.C5	1	AD16	APT	AD16-22W/G
			116	-L12	SEMAPHORE INDICATOR FOR BUSBAR DISCONNECTOR (136) WITH LED TYPE, RED(WHEN CLOSE), GREEN(WHEN OPEN)	/15.C6	1	AD16	APT	AD16-22W/G
			117	-L13	SEMAPHORE INDICATOR FOR MAINTENANCE EARTH SWITCH (131A) WITH LED TYPE, RED(WHEN CLOSE), GREEN(WHEN OPEN)	/15.C8	1	AD16	APT	AD16-22W/G
			118	-L14	SEMAPHORE INDICATOR FOR CIRCUIT BREAKER (130) WITH LED TYPE, RED(WHEN CLOSE), GREEN(WHEN OPEN)	/15.F3	1	AD16	APT	AD16-22WF/G
			119	-L296A	SEMAPHORE INDICATOR FOR LINE DISCONNECTOR (VT-2A) WITH LED TYPE, RED(WHEN CLOSE), GREEN(WHEN OPEN)	/15.F6	1	AD16	APT	AD16-22W/G
			120	-L194A	SEMAPHORE INDICATOR FOR LINE DISCONNECTOR (VT-1A) WITH LED TYPE, RED(WHEN CLOSE), GREEN(WHEN OPEN)	/15.F5	1	AD16	APT	AD16-22W/G
			121	-K100A	AUXILIARY RELAY FOR VT-1A ISOLATOR INCOMPLETE. POWER CONSUMPTION 5W, DC 125V, 4NO	/36.D10	1	MR	LS	MR-4D(40)
			122	-K100	AUXILIARY RELAY FOR VT-2A ISOLATOR INCOMPLETE. POWER CONSUMPTION 5W, DC 125V, 4NO	/34.D10	1	MR	LS	MR-4D(40)
F										
G	AS-BUILT	BY _____	DATE _____	SEC-COA 132kV/13.8kV SUBSTATION #8709						
				LIST OF APPARATUS, LCC						
				LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY						
				RIYADH SAUDI ARABIA						
	00	10.JULY.12	FOR APPROVAL	DRAWN BY D.H.HAN	CHECKED BY C.Y.HONG	الشركة الوطنية لنقل الكهرباء				
				DATE STARTED 10.JULY.12	DATE COMPLETED _____	National Grid sa				
				OPRG. DEPT. _____	ENG. DEPT. _____	CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.
						11131113/00	P	C421	CA -323948	06A of 38
										NEXT 06B
										REV. NO.
										00

1	2	3	4	5	6	7	8	9	10
A	SER.NO.	DESIGNATION	DESCRIPTION	SHT.NO	QTY	TYPE	MAKER	ORDERING INFORMATION	
	< FOR GCB MOTOR SPRING OPERATING MECHANISM >								
	1	-Y1	CLOSING COIL OF CIRCUIT BREAKER. 14R, DC 125V	/24	1	-	YOUJIN ELECTRO	-	
	2	-Y2	TRIPPING COIL 1 OF CIRCUIT BREAKER. 12R, DC 125V	/24	1	-	YOUJIN ELECTRO	-	
	3	-Y3	TRIPPING COIL 2 OF CIRCUIT BREAKER. 12R, DC 125V	/24	1	-	YOUJIN ELECTRO	-	
	4	-M4	DC MOTOR FOR SPRING CHARGING,DC 125V, 10A, 8000rpm, I=7.9A	/17	1	-	DONG JIN	-	
	5	-S1	AUXILIARY CONTACT FOR CIRCUIT BREAKER, 9NO+8NC	/27	1	-	YONG SUNG	-	
	6	-S2	AUXILIARY CONTACT FOR CIRCUIT BREAKER, 9NO+8NC	/24	1	-	YONG SUNG	-	
	7	-S34	GAS PRESSURE METER FOR CB, 5.0 bar FOR TRIP2	/22.B8	1	233.52.100	WIKA	233.52.100+820.1.1.2	
	8	-S35	GAS PRESSURE METER FOR CB, LOW PRESSURE 550 kPa, CLOSE BLOCK 5.0 barTRIP1	/23.F4	1	233.52.100	WIKA	233.52.100+820.1.1.2	
B	9	HT	AL-MOLD HEATER, 500ohm, MAX 200W	/13	1	RSHT 200	HYUNDAI	-	
	< FOR MOTOR OPERATING MECHANISM OF 3POSITION SWITCH >								
	1	-M2	DC MOTOR. DC125V. 100W. 2A. 3600±10% RPM	/17	1	DMK D80180-125A	DMK	-	
	2	-LSA	LIMIT SWITCH(ON: WHEN DS/ES IS OPEN). DC125V. 1NO+1NC.	/19,20	1	SAS-00E	SCHALTBAU	-	
	3	-LSB	LIMIT SWITCH(ON: WHEN DS/ES IS CLOSED). DC125V. 1NO+1NC.	/19,20	1	SAS-00E	SCHALTBAU	-	
	4	-DS1	DOOR S/W(ON: WHEN OPENING OF BOX COVER). DC125V. 10A.	/19,20	1	SAS-00E	SCHALTBAU	-	
	5	-DS2	DOOR S/W(ON: WHEN OPENING OF BOX COVER). DC125V. 10A.	/19,20	1	SAS-00E	SCHALTBAU	-	
	6	-DS3	DOOR S/W(ON: WHEN OPENING OF BOX COVER). DC125V. 10A.	/19,20	1	SAS-00E	SCHALTBAU	-	
	7	-ILMD	INTERLOCK MAGNET. DC 125V, 7W 698ohm	/19,20	1	3CF5265-001	MOTION TECH.	-	
	8	-ILME	INTERLOCK MAGNET. DC 125V, 7W 698ohm	/19,20	1	3CF5265-001	MOTION TECH.	-	
C	9	-PS1	PADLOCK KEY SWITCH, 125V 10A	/19,20	1	KH-302K	KUN HEUNG	KH-302K-2105	
	10	HT	HEATER, 2kohm, MAX 60W	/13	1	RWH 60 HOS	HYUNDAI	-	
	< FOR GENERAL GAS COMPARTMENTS, EXCEPT CIRCUIT BREAKER >								
	1	-S21	GAS PRESSURE METER FOR GAS COMP. G130-1, LOW PRESSURE 350&370 kPa HIGH DENSITY 5.0 bar	/28.B6	1	233.52.100	WIKA	233.52.100+820.2.2.1	
	2	-S22	GAS PRESSURE METER FOR GAS COMP. G130-2, LOW PRESSURE 350&370 kPa HIGH DENSITY 5.0 bar	/28.B7	1	233.52.100	WIKA	233.52.100+820.2.2.1	
	3	-S23	GAS PRESSURE METER FOR GAS COMP. G130-3, LOW PRESSURE 350&370 kPa HIGH DENSITY 5.0 bar	/28.B8	1	233.52.100	WIKA	233.52.100+820.2.2.1	
	4	-S24	GAS PRESSURE METER FOR GAS COMP. G130-4, LOW PRESSURE 350&370 kPa HIGH DENSITY 5.0 bar	/28.B9	1	233.52.100	WIKA	233.52.100+820.2.2.1	
	5	-S25	GAS PRESSURE METER FOR GAS COMP. G130-5, LOW PRESSURE 350&370 kPa HIGH DENSITY 5.0 bar	/28.B10	1	233.52.100	WIKA	233.52.100+820.2.2.1	
	6	-S26	GAS PRESSURE METER FOR GAS COMP. G130-6, LOW PRESSURE 350&370 kPa HIGH DENSITY 5.0 bar	/28.D6	1	233.52.100	WIKA	233.52.100+820.2.2.1	
	< FOR CT SECONDARY TERMINAL BOX >								
D	1	-X50,51	EPOXY INSULATED GAS SEALING TERMINALS (16 POLES)	/34	2		HYUNDAI		
E									
F									
G									

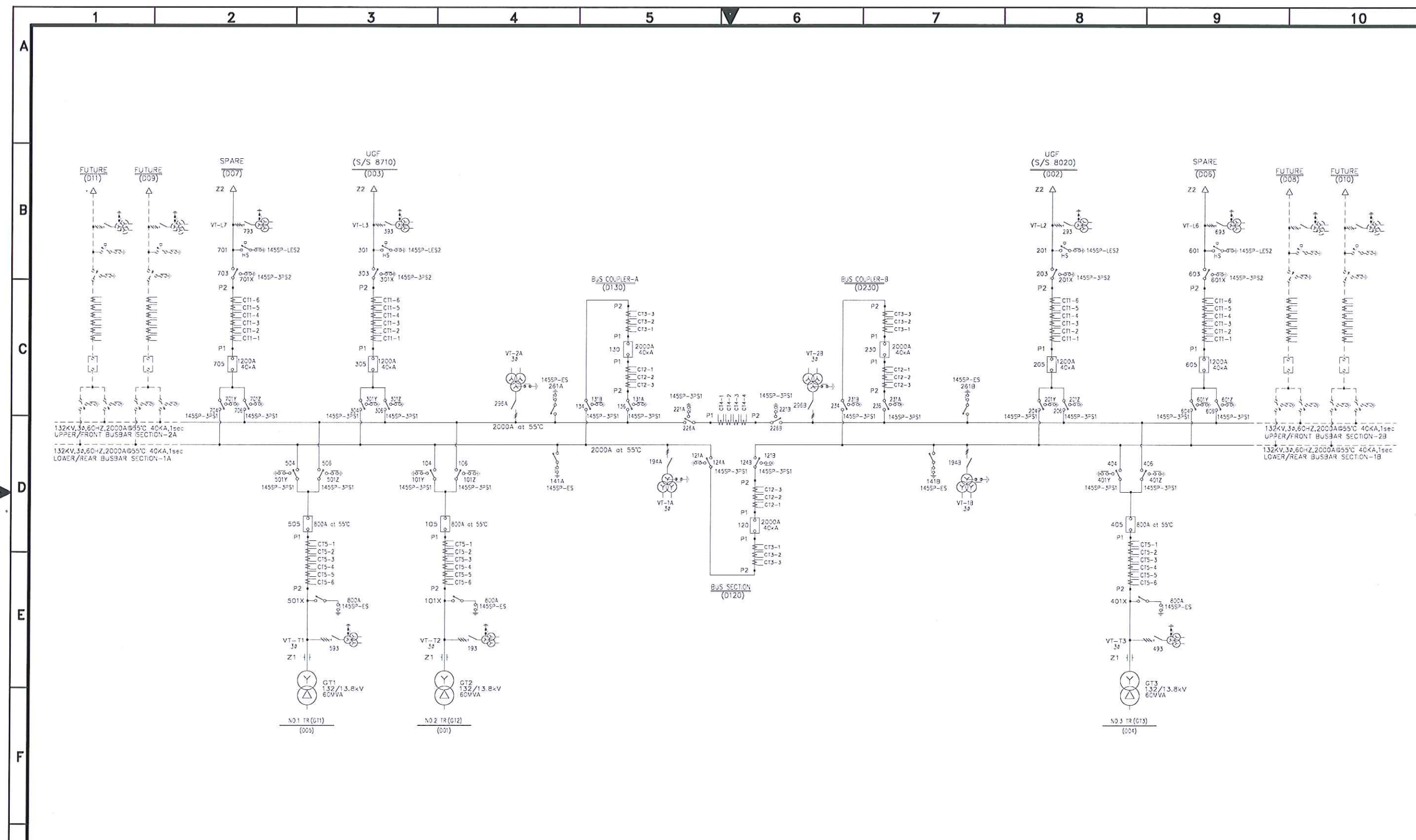
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		DRAWN BY D.H.HAN CHECKED BY C.Y.HONG		LIST OF APPARATUS, MECHANISM		National Grid sa				NEXT 07	
		DATE STARTED 10.JULY.12 DATE COMPLETED _____		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY		CONTRACT NO.		INDEX		PLANT NO.	
		OPRG. DEPT. _____ ENG. DEPT. _____		RIYADH SAUDI ARABIA		11131113/00		P		C421	
										CA -323948	
										00	




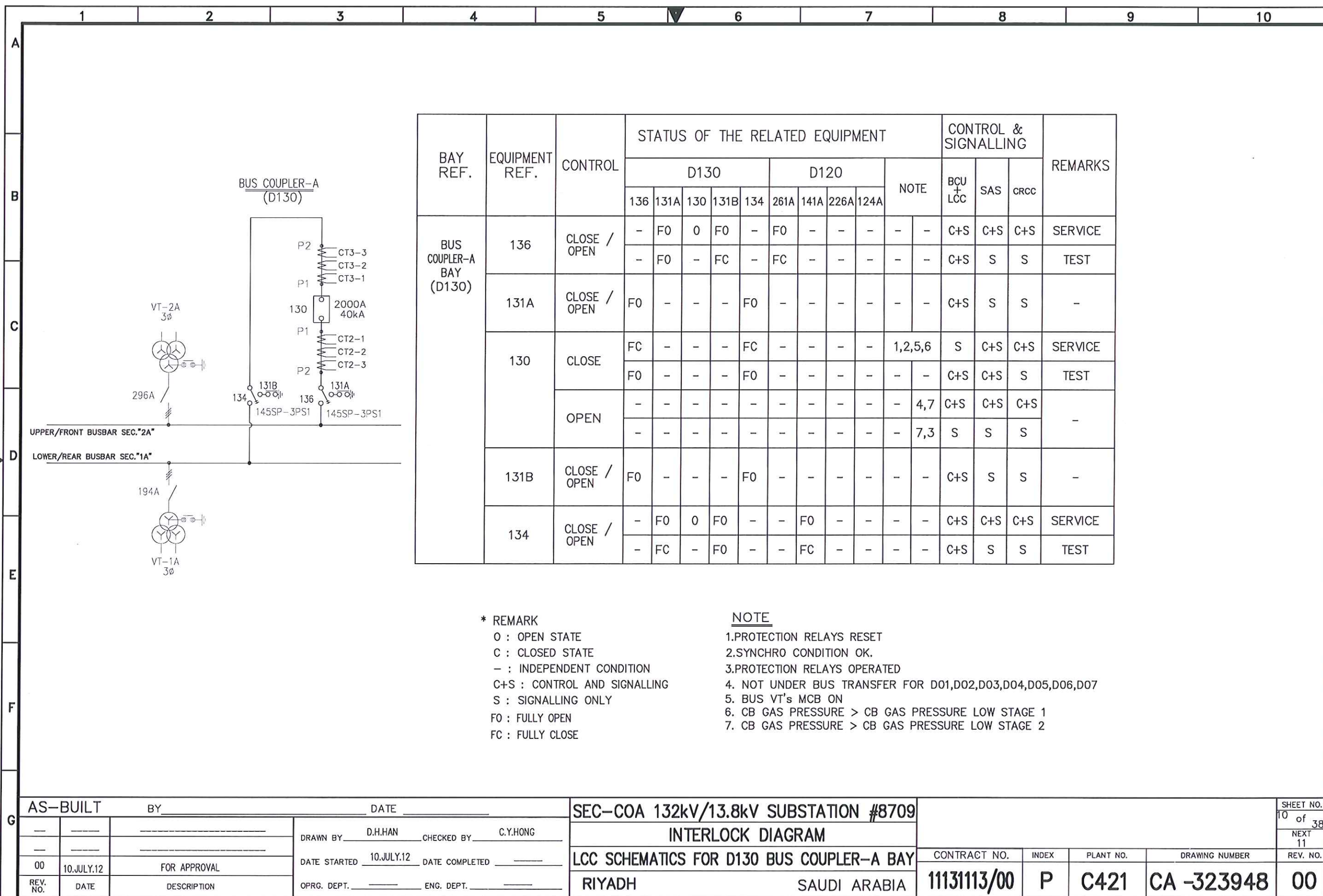
G	AS-BUILT			BY	DATE		SEC-COA 132kV/13.8kV SUBSTATION #8709				نقل الكهرباء الشركة الوطنية لنقل الكهرباء				SHEET NO. 07 of 38			
					DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG	OUTLINE-INTERNAL ARRANGEMENT OF LCC				National Grid sa		NEXT 08			
					DATE STARTED	10.JULY.12	DATE COMPLETED		LCC SCHEMATICS D130 FOR BUS COUPLER-A BAY				CONTRACT NO.		INDEX	PLANT NO.	DRAWING NUMBER	REV. NO.
	00	10.JULY.12	FOR APPROVAL						RIYADH				11131113/00	P	C421	CA -323948	00	
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT.		ENG. DEPT.		SAUDI ARABIA									



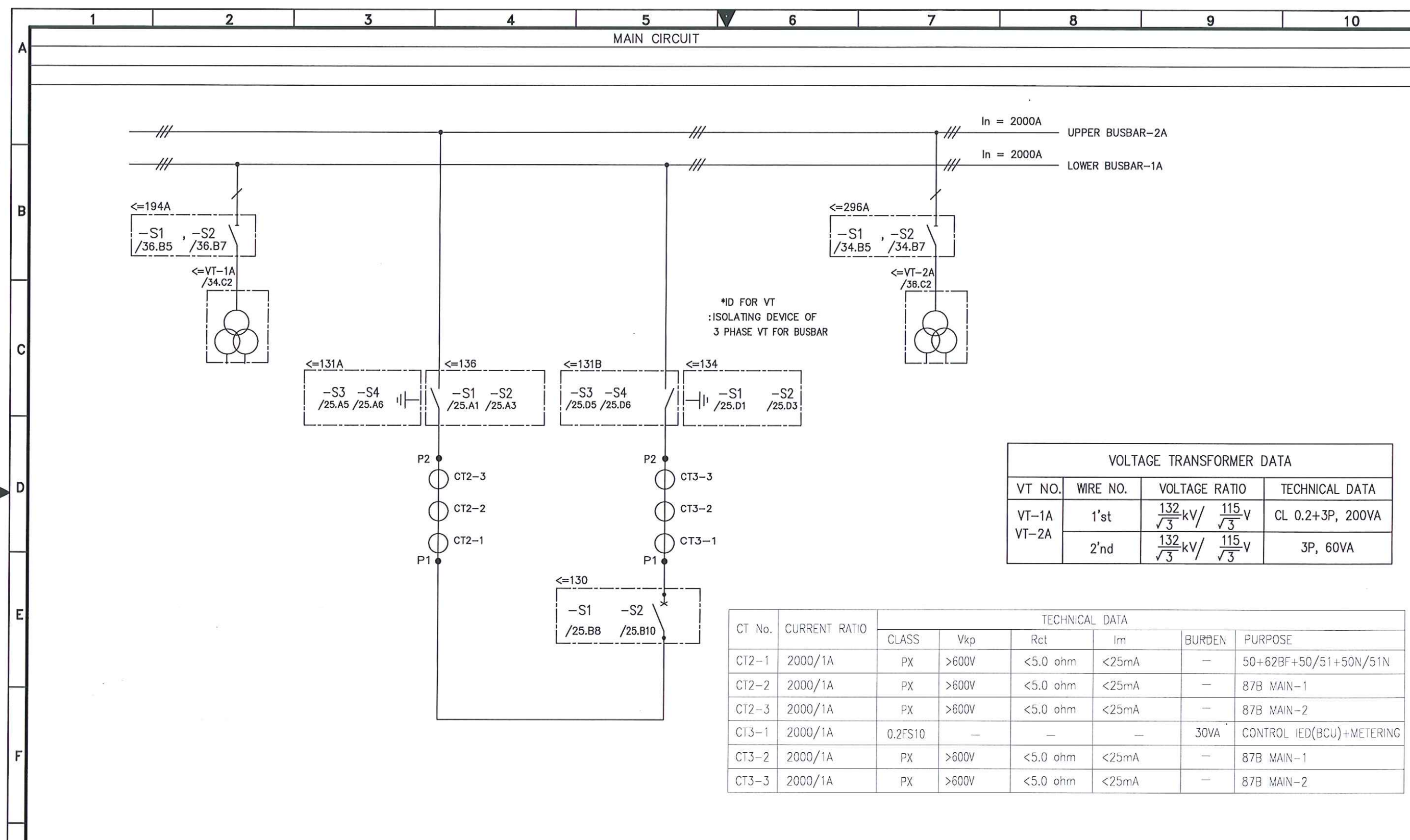
AS-BUILT		BY	DATE	SEC-COA 132kV/13.8kV SUBSTATION #8709				SHEET NO.	
00	10.JULY.12	FOR APPROVAL		FRONT ARRANGEMENT OF LCC				08	of 38
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT.	ENG. DEPT.	LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY				NEXT
					RIYADH SAUDI ARABIA				08A
					CONTRACT NO. 11131113/00				REV. NO.
					INDEX P				00
					PLANT NO. C421				
					DRAWING NUMBER CA -323948				



G	AS-BUILT			BY _____	DATE _____	SEC-COA 132kV/13.8kV SUBSTATION #8709		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>				SHEET NO. 09 of 38	
	____	____	_____	DRAWN BY D.H.HAN	CHECKED BY C.Y.HONG	OPERATION ONE LINE DIAGRAM						NEXT 10	
	____	____	_____	DATE STARTED 10.JULY.12	DATE COMPLETED _____	LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY		CONTRACT NO.		INDEX	PLANT NO.	DRAWING NUMBER	REV. NO.
	00	10.JULY.12	FOR APPROVAL					11131113/00		P	C421	CA -323948	00
	REV. NO.	DATE	DESCRIPTION	OPRG. DEPT.	ENG. DEPT.	RIYADH SAUDI ARABIA							



AS-BUILT		BY	DATE	SEC-COA 132kV/13.8kV SUBSTATION #8709				SHEET NO. 10 of 38			
		DRAWN BY D.H.HAN	CHECKED BY C.Y.HONG	INTERLOCK DIAGRAM				NEXT 11			
		DATE STARTED 10.JULY.12	DATE COMPLETED	LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY				REV. NO.			
		OPRG. DEPT.	ENG. DEPT.	RIYADH SAUDI ARABIA				00			
REV. NO.	DATE	DESCRIPTION			CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER			
00	10.JULY.12	FOR APPROVAL			11131113/00	P	C421	CA -323948			



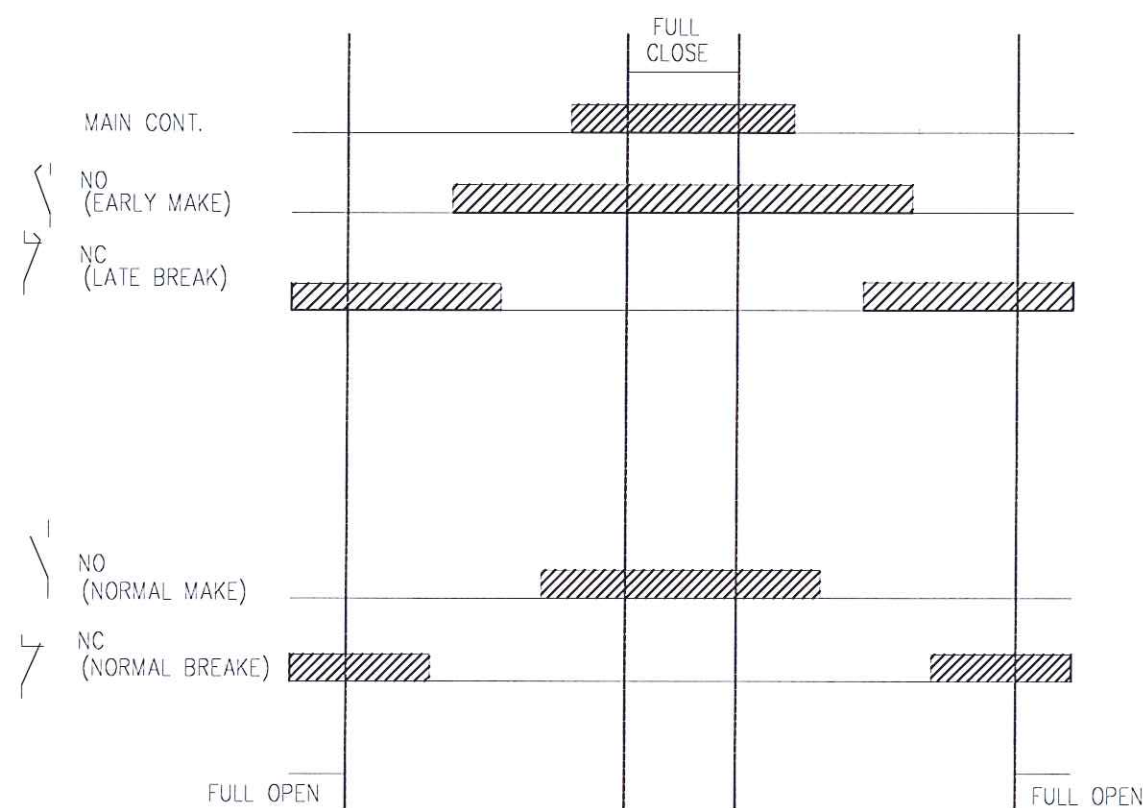
VOLTAGE TRANSFORMER DATA			
VT NO.	WIRE NO.	VOLTAGE RATIO	TECHNICAL DATA
VT-1A VT-2A	1'st	$\frac{132}{\sqrt{3}}\text{kV} / \frac{115}{\sqrt{3}}\text{V}$	CL 0.2+3P, 200VA
	2'nd	$\frac{132}{\sqrt{3}}\text{kV} / \frac{115}{\sqrt{3}}\text{V}$	3P, 60VA

CT No.	CURRENT RATIO	TECHNICAL DATA					
		CLASS	V _{kp}	R _{ct}	I _m	BURDEN	PURPOSE
CT2-1	2000/1A	PX	>600V	<5.0 ohm	<25mA	—	50+62BF+50/51+50N/51N
CT2-2	2000/1A	PX	>600V	<5.0 ohm	<25mA	—	87B MAIN-1
CT2-3	2000/1A	PX	>600V	<5.0 ohm	<25mA	—	87B MAIN-2
CT3-1	2000/1A	0.2FS10	—	—	—	30VA	CONTROL IED(BCU)+METERING
CT3-2	2000/1A	PX	>600V	<5.0 ohm	<25mA	—	87B MAIN-1
CT3-3	2000/1A	PX	>600V	<5.0 ohm	<25mA	—	87B MAIN-2

AS-BUILT		BY	DATE	SEC-COA 132kV/13.8kV SUBSTATION #8709		الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		SHEET NO. 11 of 38	
		DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG	MAIN CIRCUIT		National Grid sa		NEXT 12	
		DATE STARTED	10.JULY.12	DATE COMPLETED		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY		DRAWING NUMBER		REV. NO.	
		OPRG. DEPT.		ENG. DEPT.		RIYADH SAUDI ARABIA		CA -323948		00	
REV. NO.	DATE	DESCRIPTION					CONTRACT NO.		INDEX	PLANT NO.	
00	10.JULY.12	FOR APPROVAL					11131113/00		P	C421	

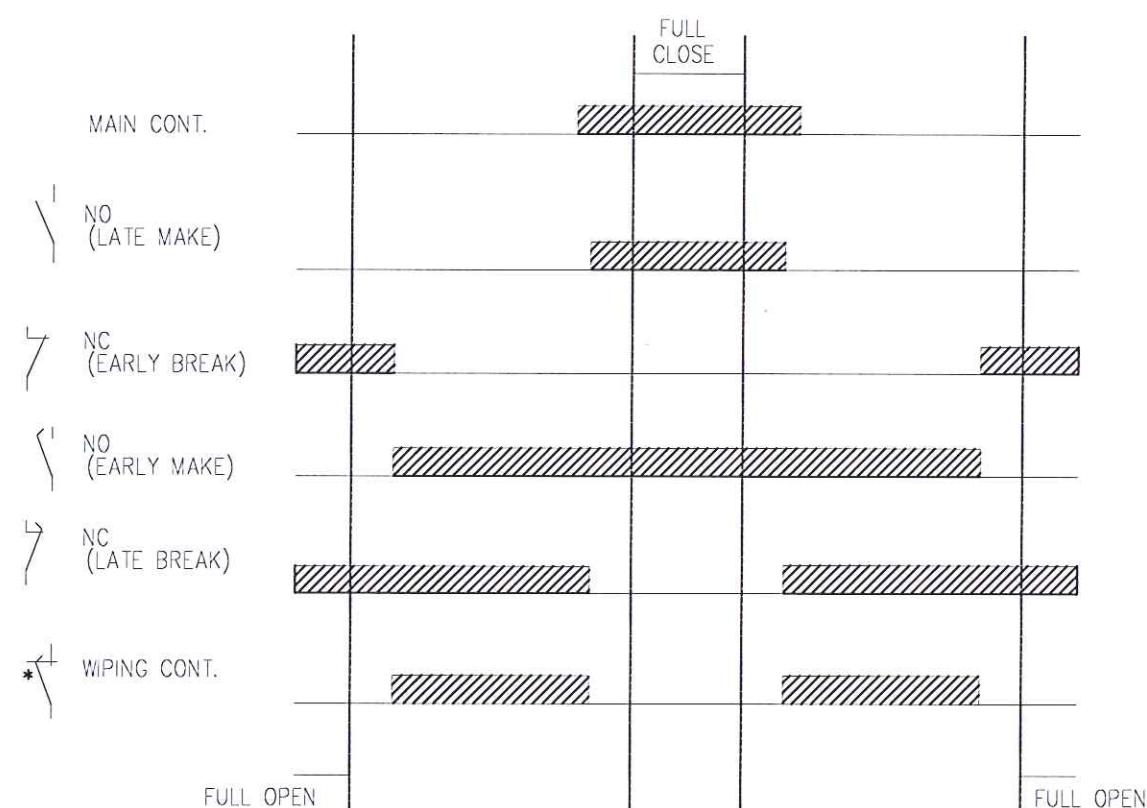
1. SWITCHING DIAGRAM FOR CIRCUIT BREAKER

▨ : CONTACT CLOSED



2. SWITCHING DIAGRAM FOR DS & ES

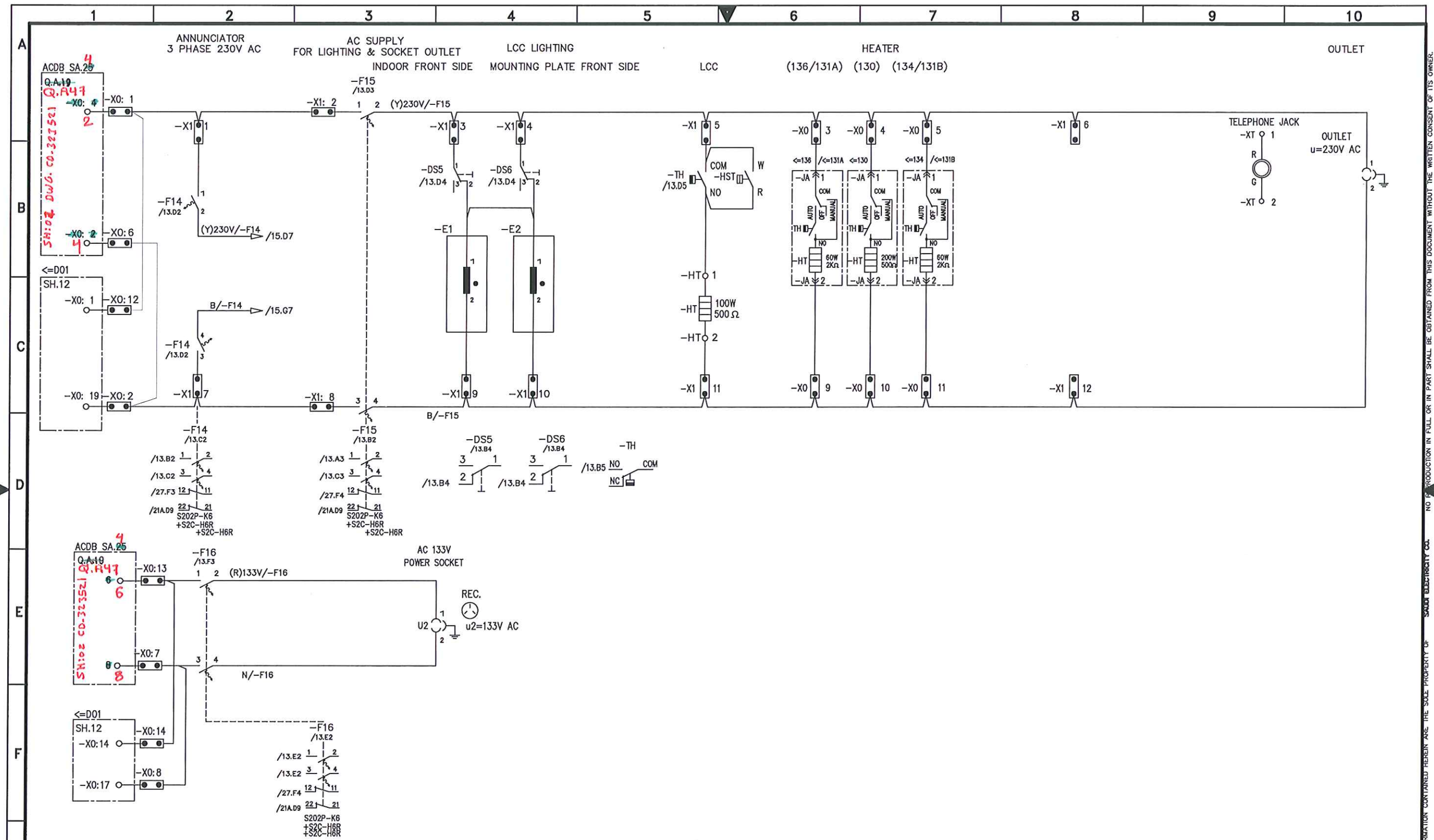
▨ : CONTACT CLOSED



AS-BUILT		BY	DATE
00	10.JULY.12	FOR APPROVAL	DATE STARTED 10.JULY.12 DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. ENG. DEPT.

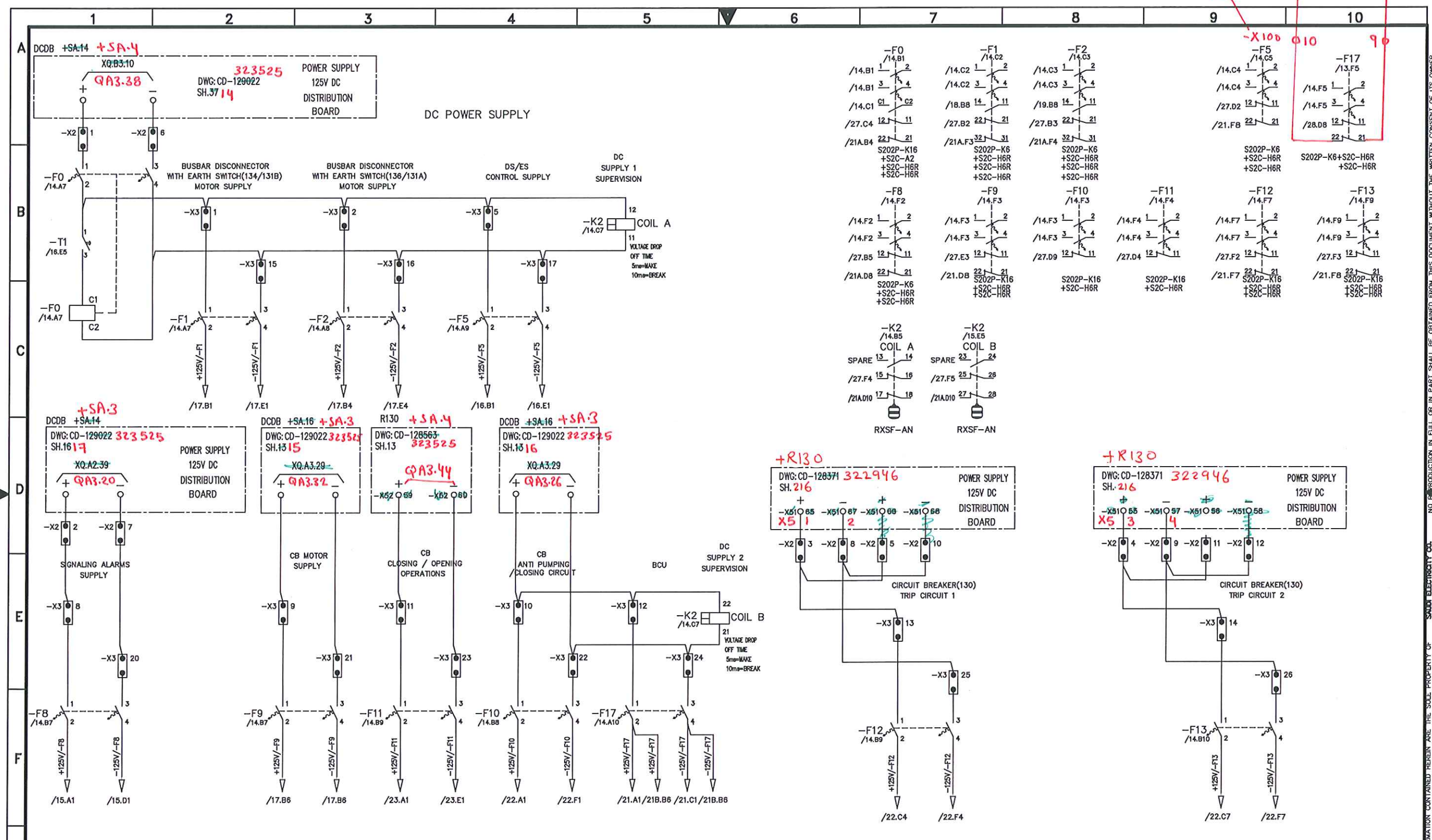
SEC-COA 132kV/13.8kV SUBSTATION #8709
 SWITCHING DIAGRAM
 LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY
 RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid sa	
CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
11131113/00	P	C421	CA -323948	12 of 38	00

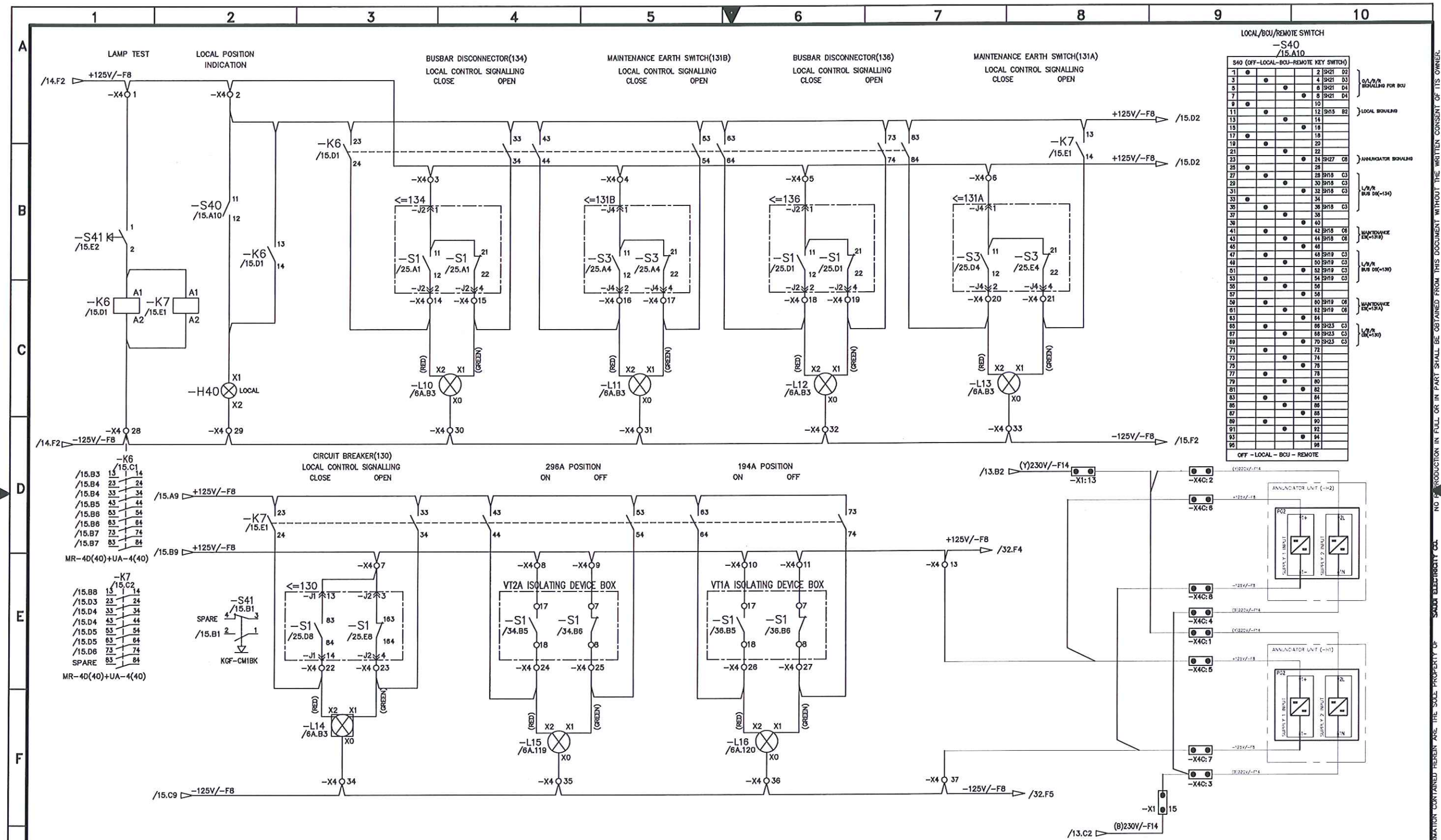


AS-BUILT			BY _____		DATE _____		SEC-COA 132kV/13.8kV SUBSTATION #8709			الشركة الوطنية لنقل الكهرباء			SHEET NO. 13 of 38	
			DRAWN BY D.H.HAN		CHECKED BY C.Y.HONG		AC POWER SUPPLY & HEATING/LIGHTING CIRCUIT			National Grid sa			NEXT 14	
			DATE STARTED 10.JULY.12		DATE COMPLETED _____		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY			CONTRACT NO. 11131113/00			REV. NO. 00	
REV. NO.			DATE		DESCRIPTION		OPRG. DEPT. _____		ENG. DEPT. _____		INDEX P		PLANT NO. C421	
					FOR APPROVAL						DRAWING NUMBER CA -323948			

BCU DC FAIL
 SH:233
 DWG. CD-323015
 +SAS TIF-3
 X51:34
 X41:26
 NEW T.B



AS-BUILT			BY			DATE			SEC-COA 132kV/13.8kV SUBSTATION #8709			الشركة الوطنية لنقل الكهرباء			SHEET NO. 14 of 38		
									DC POWER SUPPLY(FRONT BUSBAR CIRCUIT & TRIP COIL 1,2)			National Grid sa			NEXT 15		
									LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY			CONTRACT NO. 11131113/00			REV. NO. 00		
									RIYADH SAUDI ARABIA			INDEX P			DRAWING NUMBER CA -323948		
												PLANT NO. C421			SEC-D (2004/10)		
												EDMS VECTOR			SECE00		



AS-BUILT		BY	DATE
00	10.JULY.12	FOR APPROVAL	
REV. NO.	DATE	DESCRIPTION	

DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG
DATE STARTED	10.JULY.12	DATE COMPLETED	
OPRG. DEPT.		ENG. DEPT.	

SEC-COA 132kV/13.8kV SUBSTATION #8709

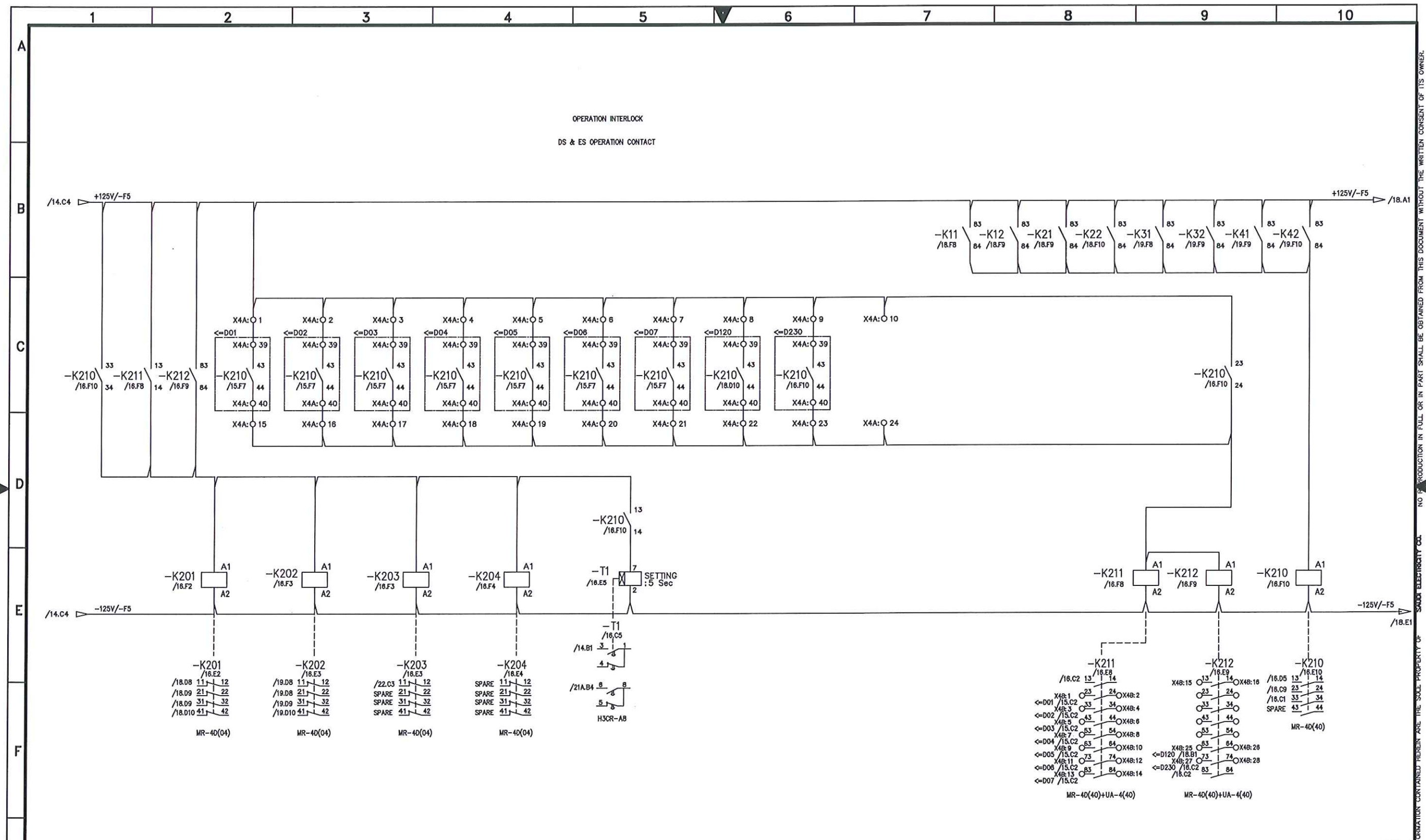
LOCAL POSITION INDICATOR

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		National Grid sa	
CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER
11131113/00	P	C421	CA-323948

SHEET NO.	15 of 38
NEXT	16
REV. NO.	00

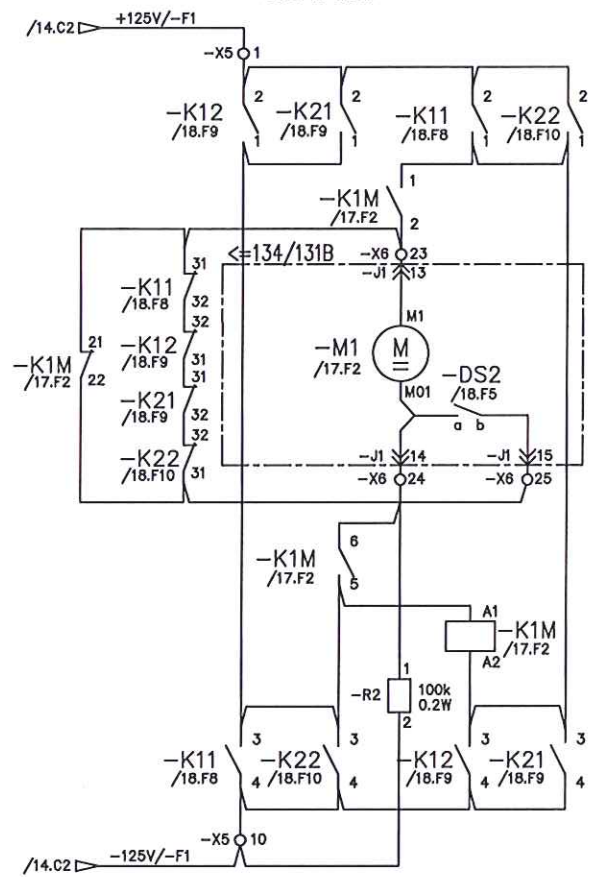


AS-BUILT			BY _____		DATE _____		SEC-COA 132kV/13.8kV SUBSTATION #8709			الشركة الوطنية لنقل الكهرباء			SHEET NO.	
							OPERATION INTERLOCK			نقل الكهرباء			16 of 38	
			DRAWN BY D.H.HAN		CHECKED BY C.Y.HONG		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY			National Grid sa			NEXT	
			DATE STARTED 10.JULY.12		DATE COMPLETED _____		RIYADH			CONTRACT NO. 11131113/00			REV. NO.	
REV. NO.			DATE		DESCRIPTION		SAUDI ARABIA			INDEX P			00	
										PLANT NO. C421				
										DRAWING NUMBER CA -323948				

1 2 3 4 5 6 7 8 9 10

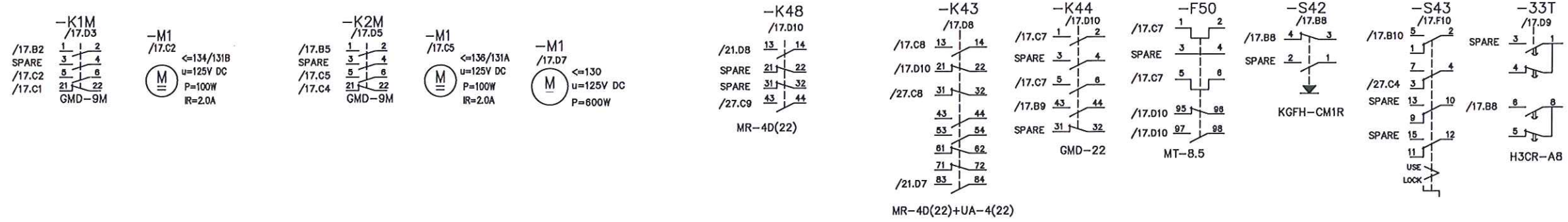
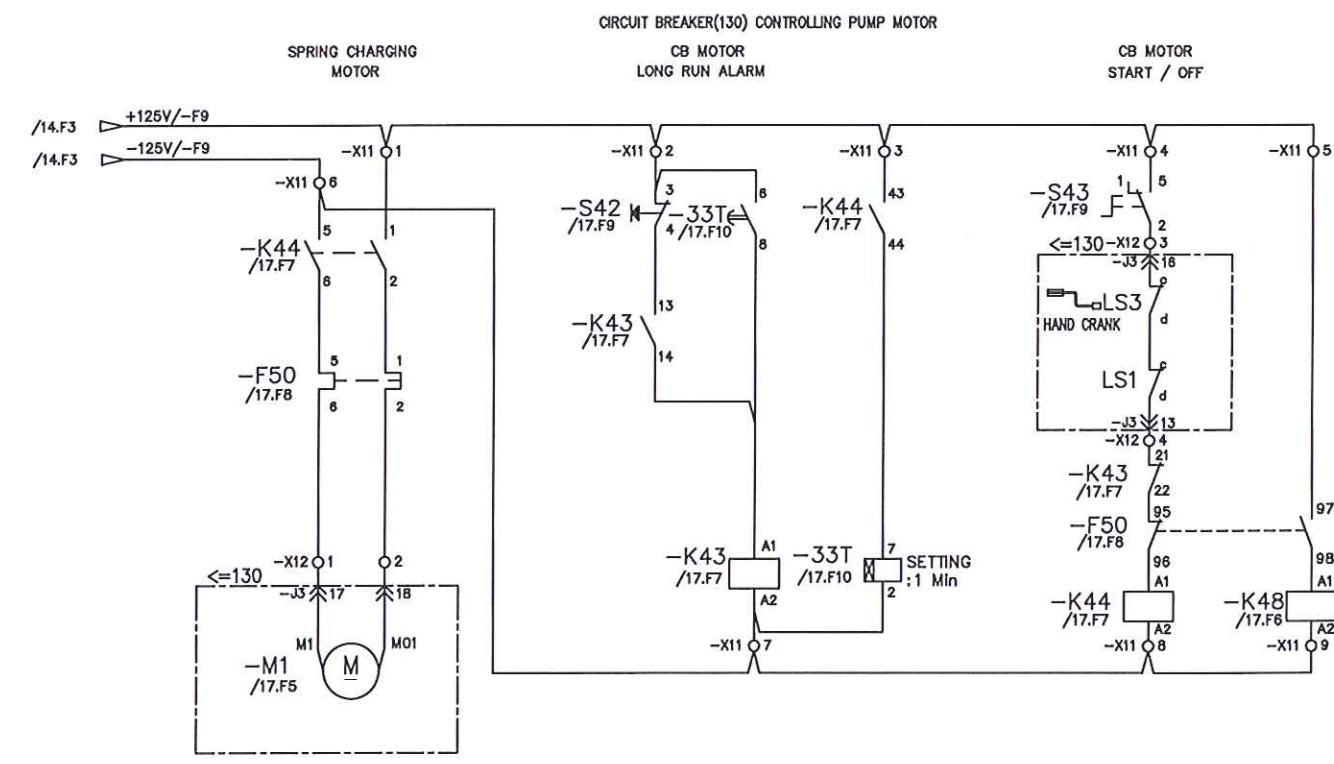
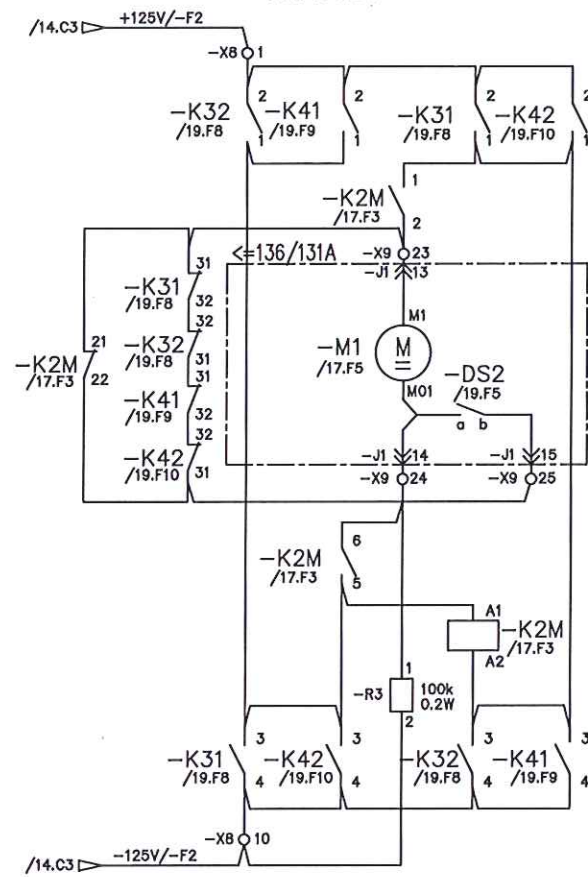
BUSBAR DISCONNECTOR WITH MAINTENANCE EARTH SWITCH(134/131B):CONTROLLING MOTOR CIRCUIT

NOTES: 1) ELECTRICAL OPERATION IS POSSIBLE WHEN MECHANISM BOX DOOR IS CLOSED
2) MANUAL OPERATION POSSIBLE ONLY WHEN DOOR IS OPEN.

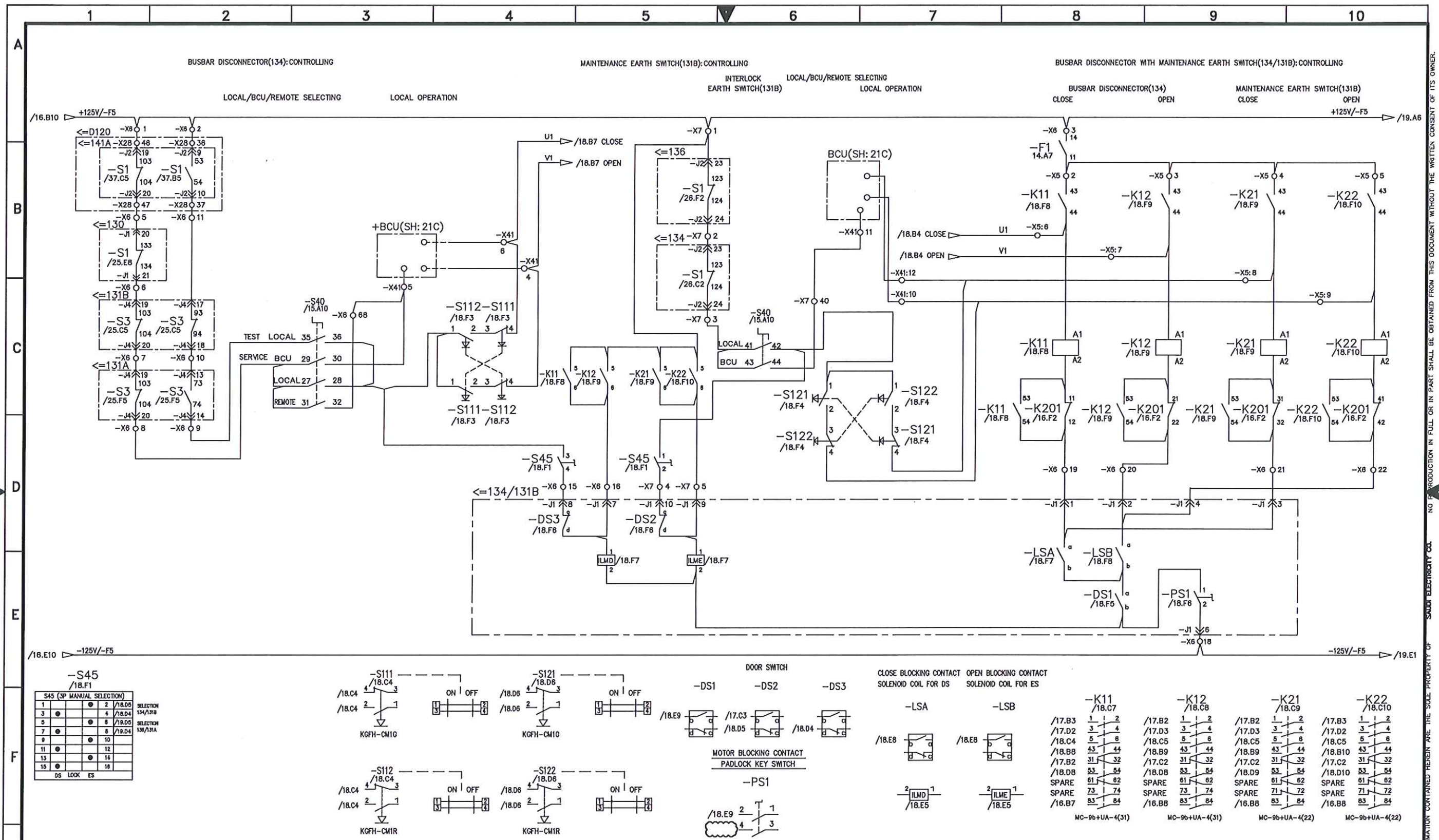


BUSBAR DISCONNECTOR WITH MAINTENANCE EARTH SWITCH(136/131A):CONTROLLING MOTOR CIRCUIT

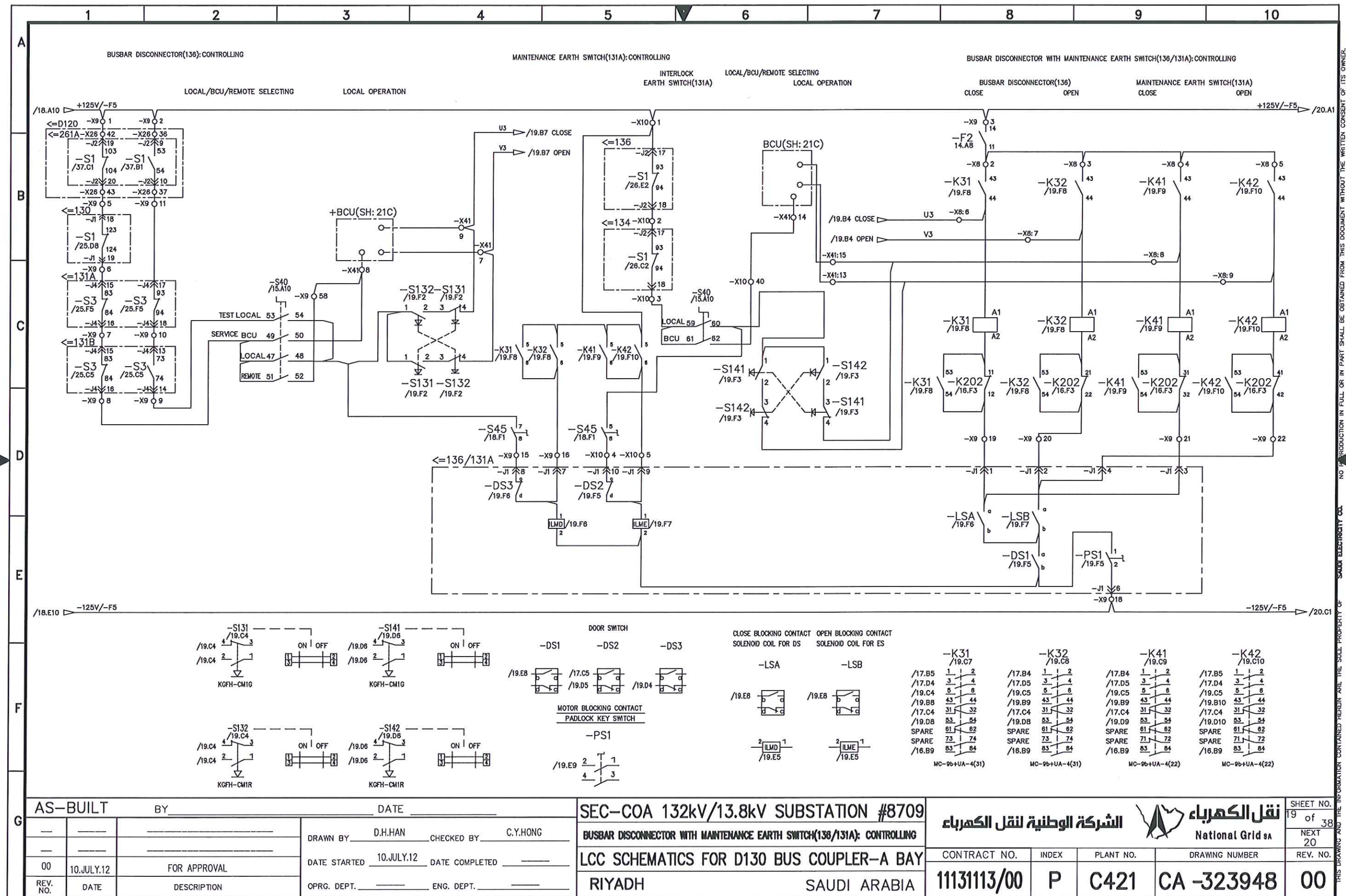
NOTES: 1) ELECTRICAL OPERATION IS POSSIBLE WHEN MECHANISM BOX DOOR IS CLOSED
2) MANUAL OPERATION POSSIBLE ONLY WHEN DOOR IS OPEN.

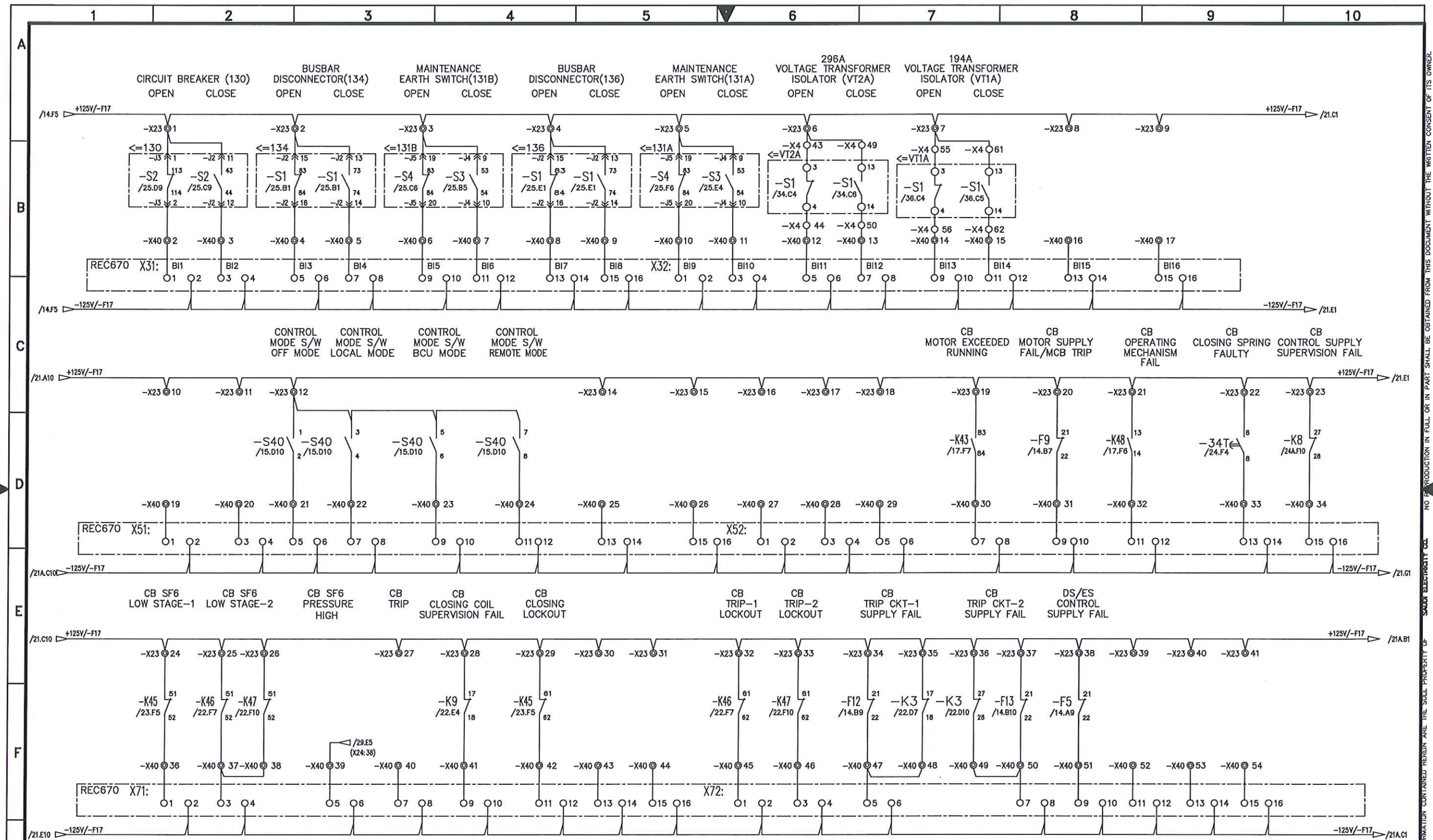


AS-BUILT			BY _____ DATE _____			SEC-COA 132kV/13.8kV SUBSTATION #8709			شركة الوطنية لنقل الكهرباء			SHEET NO. 17 of 38	
			DRAWN BY D.H.HAN CHECKED BY C.Y.HONG			MOTOR DRIVE CIRCUIT			National Grid			NEXT 18	
			DATE STARTED 10.JULY.12 DATE COMPLETED _____			LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY			CONTRACT NO. 11131113/00			REV. NO. 00	
REV. NO.			DATE			RIYADH SAUDI ARABIA			INDEX P			DRAWING NUMBER CA-323948	
			DESCRIPTION						PLANT NO. C421				

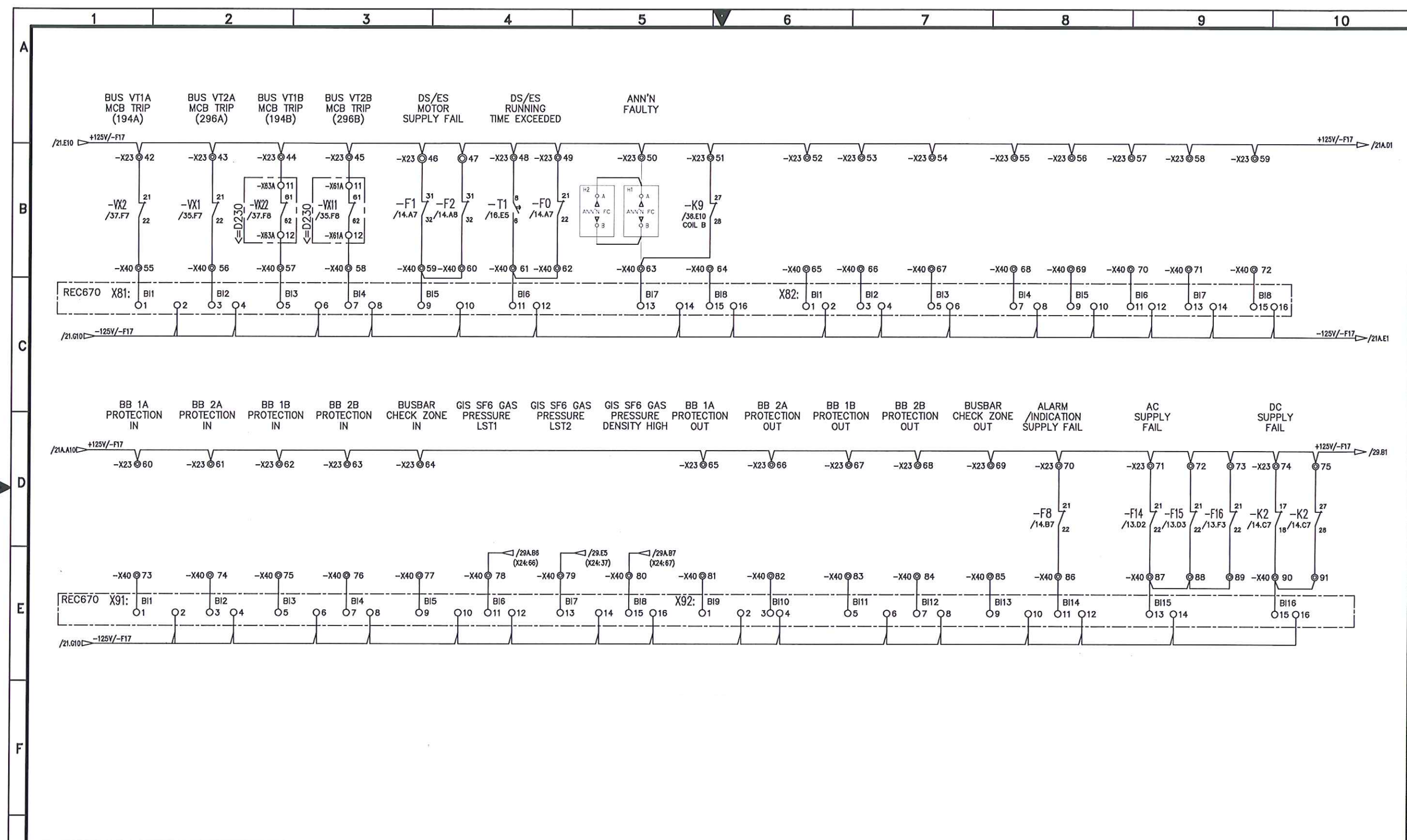


NO PRODUCTION IN FULL OR IN PART SHALL BE OBTAINED FROM THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF ITS OWNER.



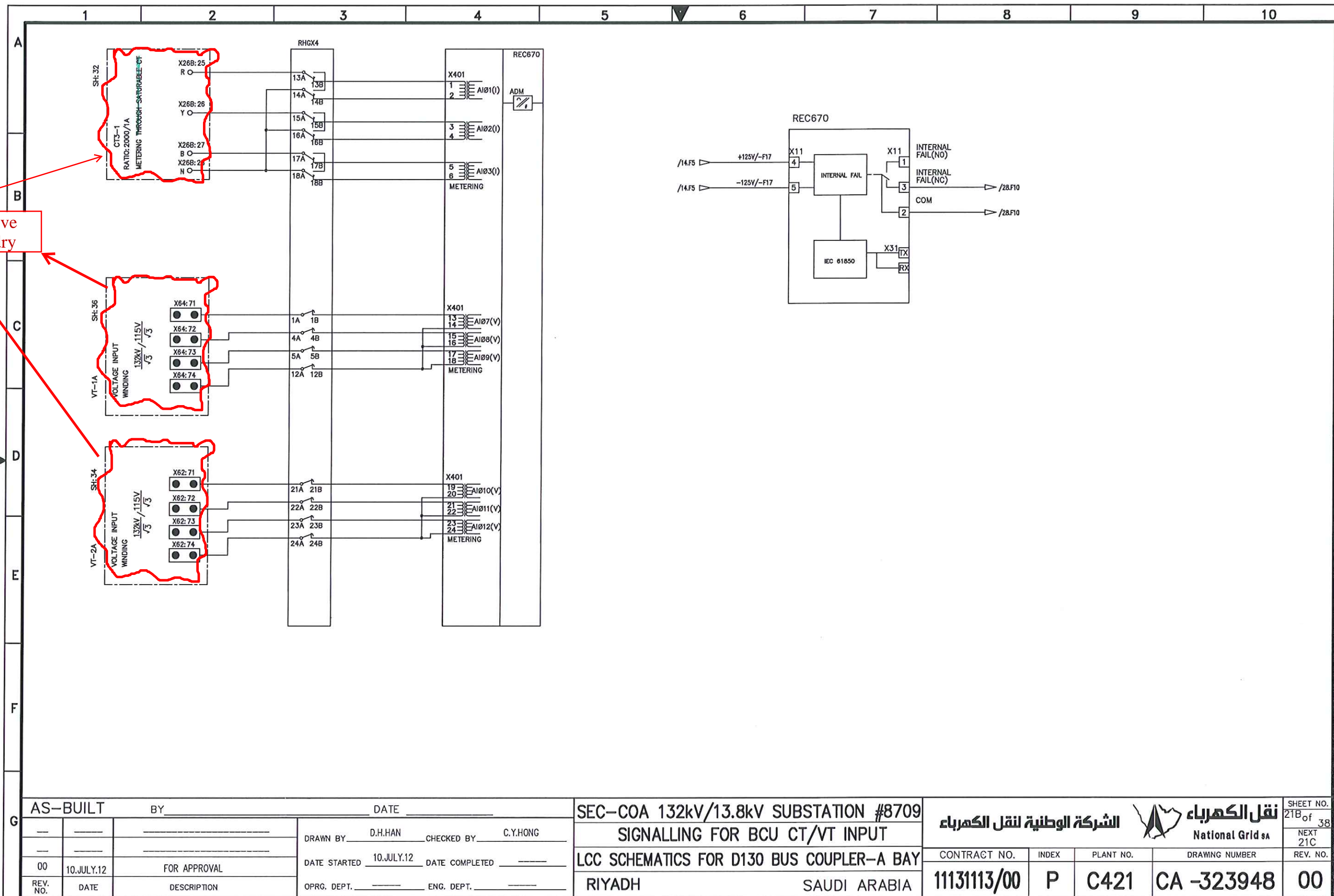


AS-BUILT			DATE		SEC-COA 132kV/13.8kV SUBSTATION #8709				الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		SHEET NO. 21 of 38	
BY			DRAWN BY D.H.HAN		CHECKED BY C.Y.HONG		SIGNALLING FOR BCU INPUT 1		National Grid sa		NEXT 21A		REV. NO.	
00			DATE STARTED 10.JULY.12		DATE COMPLETED		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY		CONTRACT NO. 11131113/00		INDEX P		PLANT NO. C421	
REV. NO.			DATE		DESCRIPTION		RIYADH SAUDI ARABIA		DRAWING NUMBER CA -323948		00		00	



AS-BUILT				SEC-COA 132kV/13.8kV SUBSTATION #8709				الشركة الوطنية لنقل الكهرباء				SHEET NO. 21A of 38	
BY _____ DATE _____				DRAWN BY D.H.HAN CHECKED BY C.Y.HONG				National Grid sa				NEXT 21B	
FOR APPROVAL				DATE STARTED 10.JULY.12 DATE COMPLETED _____				CONTRACT NO. 11131113/00				REV. NO. 00	
REV. NO. _____ DATE _____ DESCRIPTION _____				OPRG. DEPT. _____ ENG. DEPT. _____				INDEX P				DRAWING NUMBER CA -323948	
				LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY				PLANT NO. C421					
				RIYADH SAUDI ARABIA				DRAWING NUMBER CA -323948					

Please remove panel boundary



AS-BUILT		BY	DATE
00	10.JULY.12	FOR APPROVAL	
REV. NO.	DATE	DESCRIPTION	
00	10.JULY.12	FOR APPROVAL	

DRAWN BY: D.H.HAN CHECKED BY: C.Y.HONG

DATE STARTED: 10.JULY.12 DATE COMPLETED: _____

OPRG. DEPT.: _____ ENG. DEPT.: _____

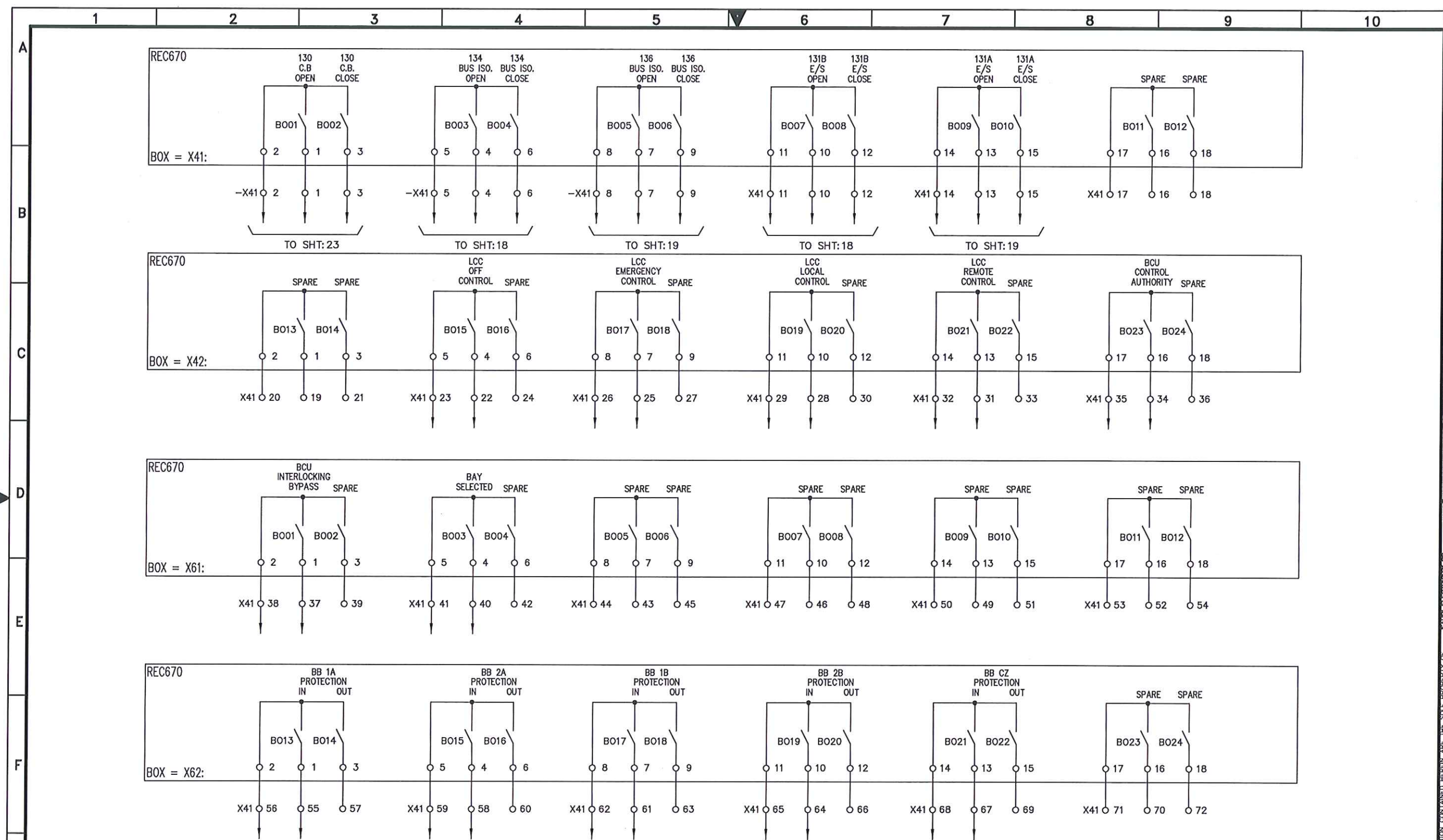
SEC-COA 132kV/13.8kV SUBSTATION #8709

SIGNALLING FOR BCU CT/VT INPUT

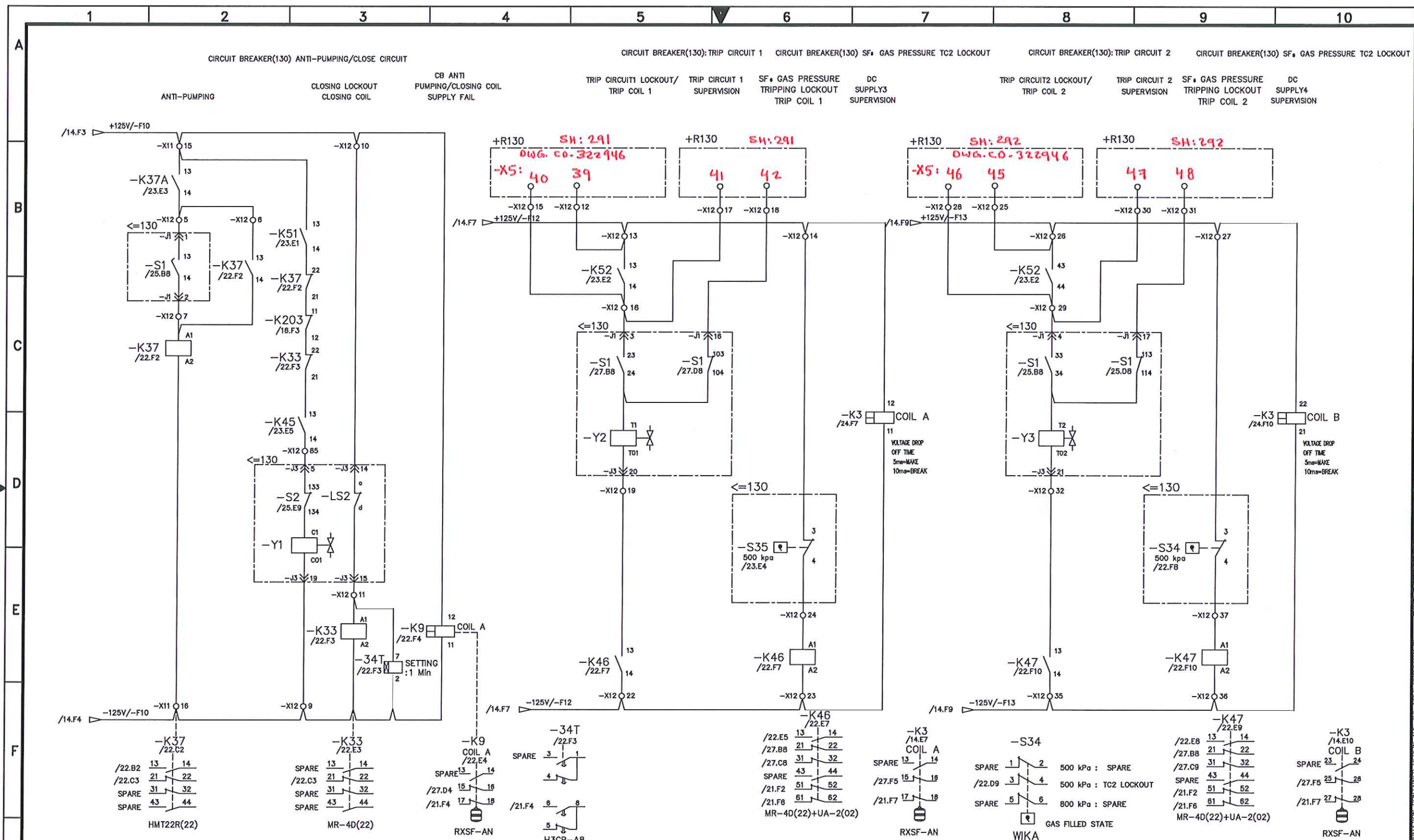
LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH SAUDI ARABIA

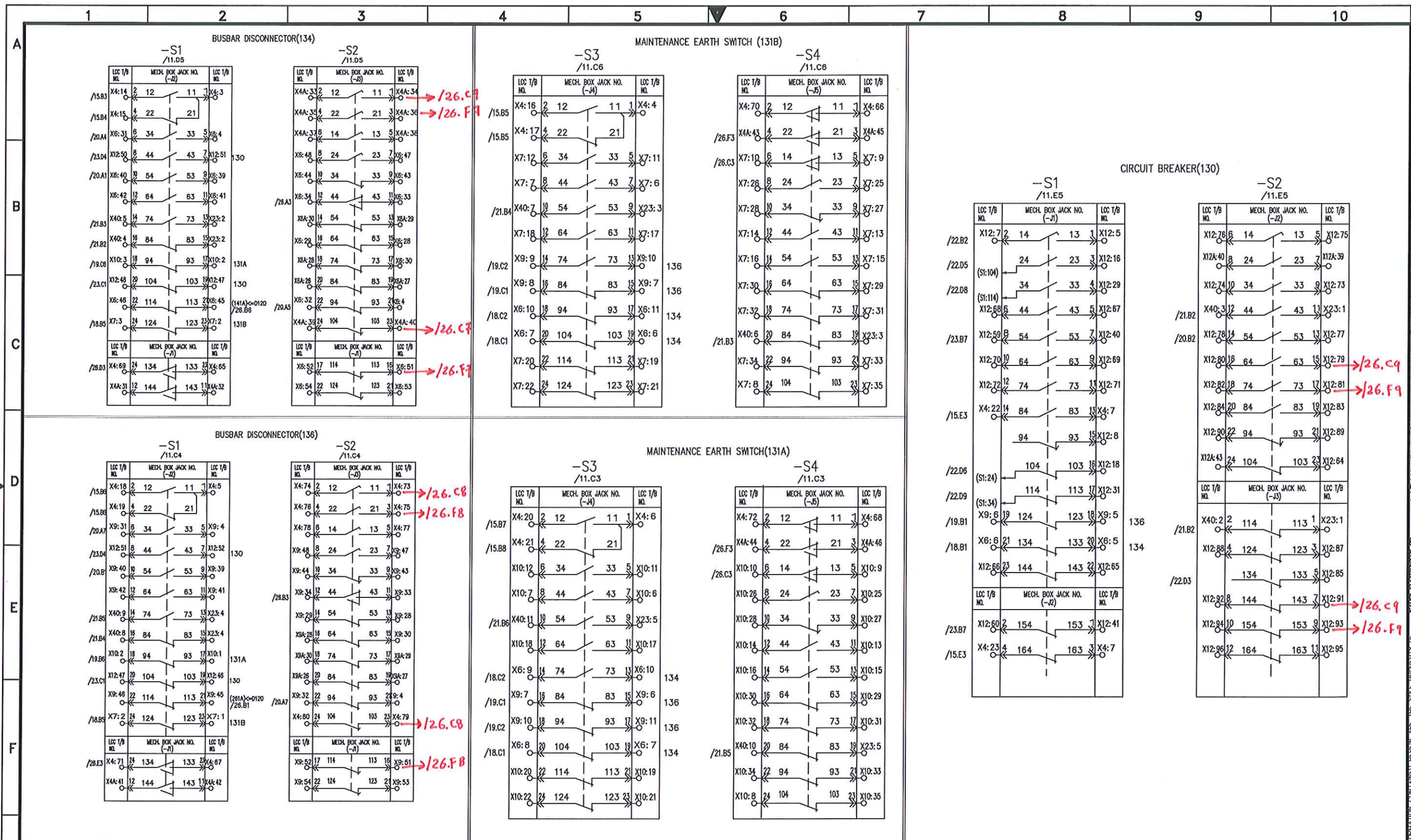
الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid sa		SHEET NO.
CONTRACT NO.		INDEX		PLANT NO.		21B of 38
11131113/00		P		C421		NEXT 21C
DRAWING NUMBER		REV. NO.		CA -323948		00



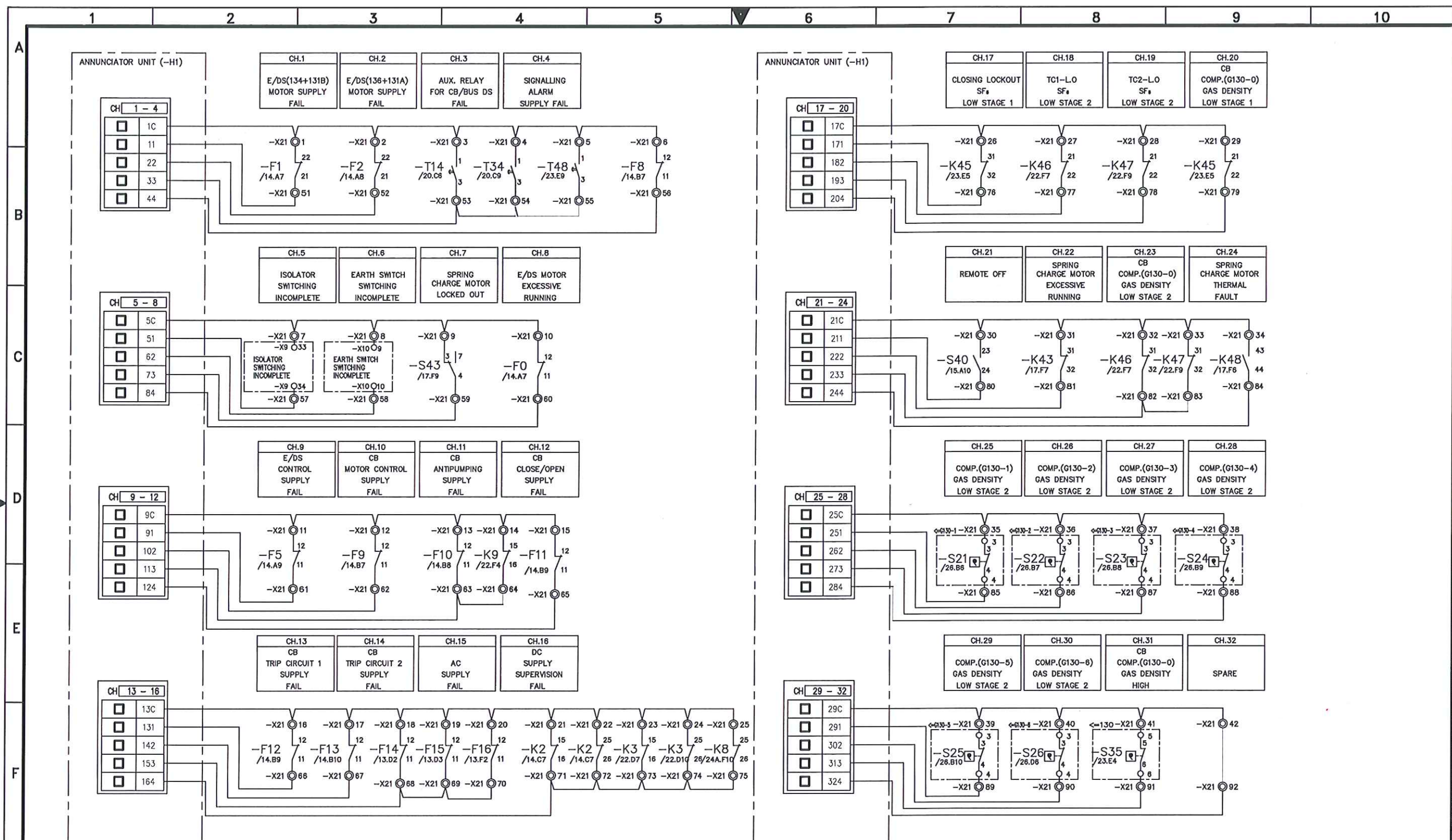
AS-BUILT		BY	DATE	SEC-COA 132kV/13.8kV SUBSTATION #8709		الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		SHEET NO.
				DRAWN BY D.H.HAN CHECKED BY C.Y.HONG		National Grid sa		21C of 38		NEXT
				DATE STARTED 10.JULY.12 DATE COMPLETED		CONTRACT NO. 11131113/00		INDEX P		REV. NO.
				OPRG. DEPT. ENG. DEPT.		PLANT NO. C421		DRAWING NUMBER CA -323948		00
REV. NO.		DATE	DESCRIPTION	RIYADH SAUDI ARABIA						



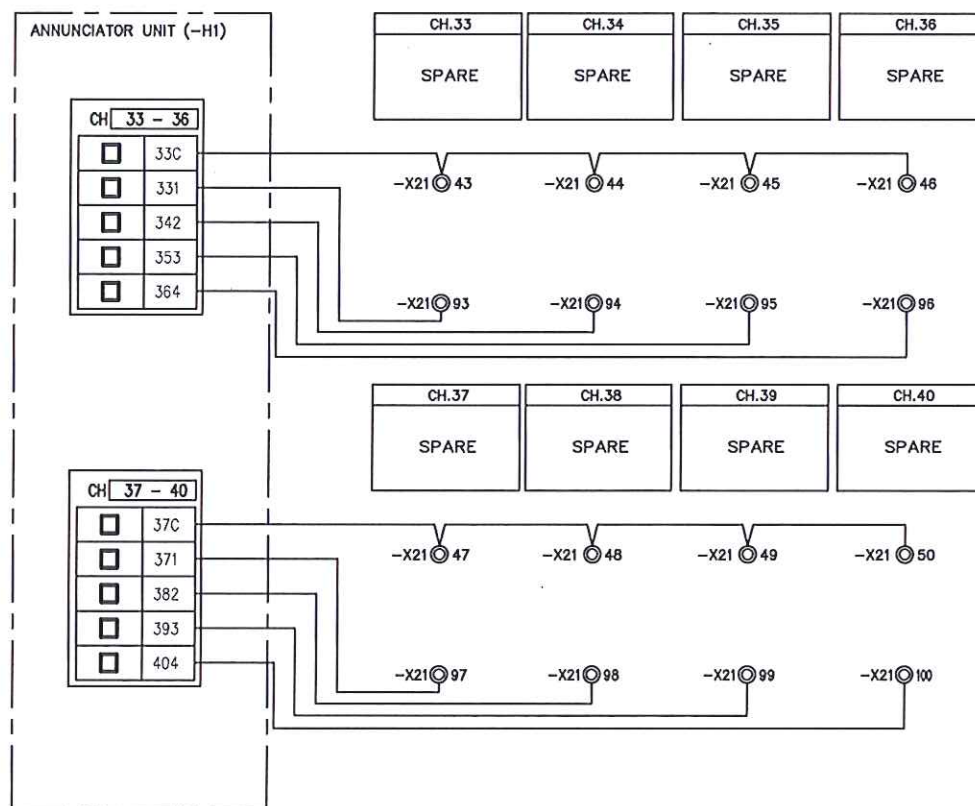
AS-BUILT		BY	DATE	SEC-COA 132kV/13.8kV SUBSTATION #8709		الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		SHEET NO. 22 of 38	
		DRAWN BY D.H.HAN CHECKED BY C.Y.HONG		CB ANTI-PUMPING/CLOSE/TRIP CIRCUIT				National Grid		NEXT 23	
		DATE STARTED 10.JULY.12 DATE COMPLETED		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY				CONTRACT NO. 11131113/00		REV. NO. 00	
		OPRG. DEPT. ENG. DEPT.		RIYADH SAUDI ARABIA				INDEX P		DRAWING NUMBER CA -323948	
REV. NO.		DATE		DESCRIPTION				PLANT NO. C421		SEC-D (2004/10)	



AS-BUILT		BY _____ DATE _____		SEC-COA 132kV/13.8kV SUBSTATION #8709		الشركة الوطنية لنقل الكهرباء		National Grid sa		SHEET NO. 25 of 38	
		DRAWN BY D.H.HAN CHECKED BY C.Y.HONG		AUXILIARY CONTACTS						NEXT 26	
		DATE STARTED 10.JULY.12 DATE COMPLETED _____		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY		CONTRACT NO. 11131113/00		INDEX P		REV. NO. 00	
00		10.JULY.12 FOR APPROVAL		RIYADH SAUDI ARABIA		PLANT NO. C421		DRAWING NUMBER CA -323948			
REV. NO.		DATE		OPRG. DEPT. _____ ENG. DEPT. _____		11131113/00		P		00	



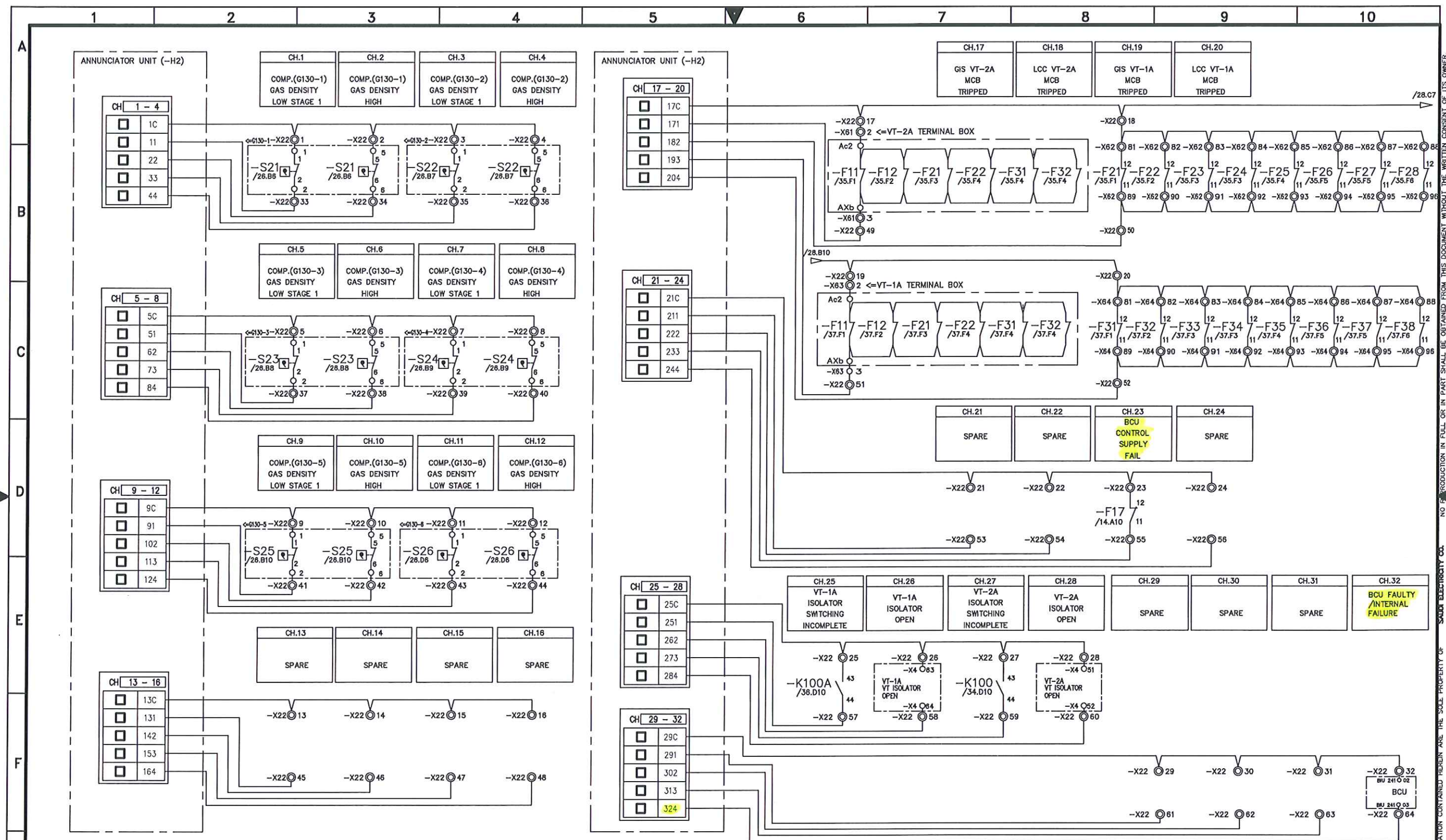
G	AS—BUILT			BY	DATE		SEC—COA 132kV/13.8kV SUBSTATION #8709			شركة الوطنية لنقل الكهرباء				نقل الكهرباء		SHEET NO. 27 of 38	
	—	—	—	DRAWN BY D.H.HAN	CHECKED BY C.Y.HONG	DATE STARTED 10.JULY.12	DATE COMPLETED	SIGNALLING : INPUT ANNUNCIATOR 1			National Grid sa				NEXT 27A		
	—	—	—					LCC SCHEMATICS FOR D130 BUS COUPLER—A BAY			CONTRACT NO.		INDEX	PLANT NO.	DRAWING NUMBER	REV. NO.	
	00	10.JULY.12	FOR APPROVAL					RIYADH SAUDI ARABIA			11131113/00		P	C421	CA -323948	00	
	REV. NO.	DATE	DESCRIPTION	OPRG. DEPT.	ENG. DEPT.												



AS-BUILT		BY _____	DATE _____
00	10.JULY.12	FOR APPROVAL	DRAWN BY D.H.HAN CHECKED BY C.Y.HONG
REV. NO.	DATE	DESCRIPTION	DATE STARTED 10.JULY.12 DATE COMPLETED _____
			OPRG. DEPT. _____ ENG. DEPT. _____

SEC-COA 132kV/13.8kV SUBSTATION #8709
 SIGNALLING : INPUT ANNUNCIATOR 1
 LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY
 RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		SHEET NO. 27A of 38
National Grid sa				NEXT 28
CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER	REV. NO.
11131113/00	P	C421	CA -323948	00



AS-BUILT

BY

DATE

SEC-COA 132kV/13.8kV SUBSTATION #8709

SIGNALLING : INPUT ANNUNCIATOR 2

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH

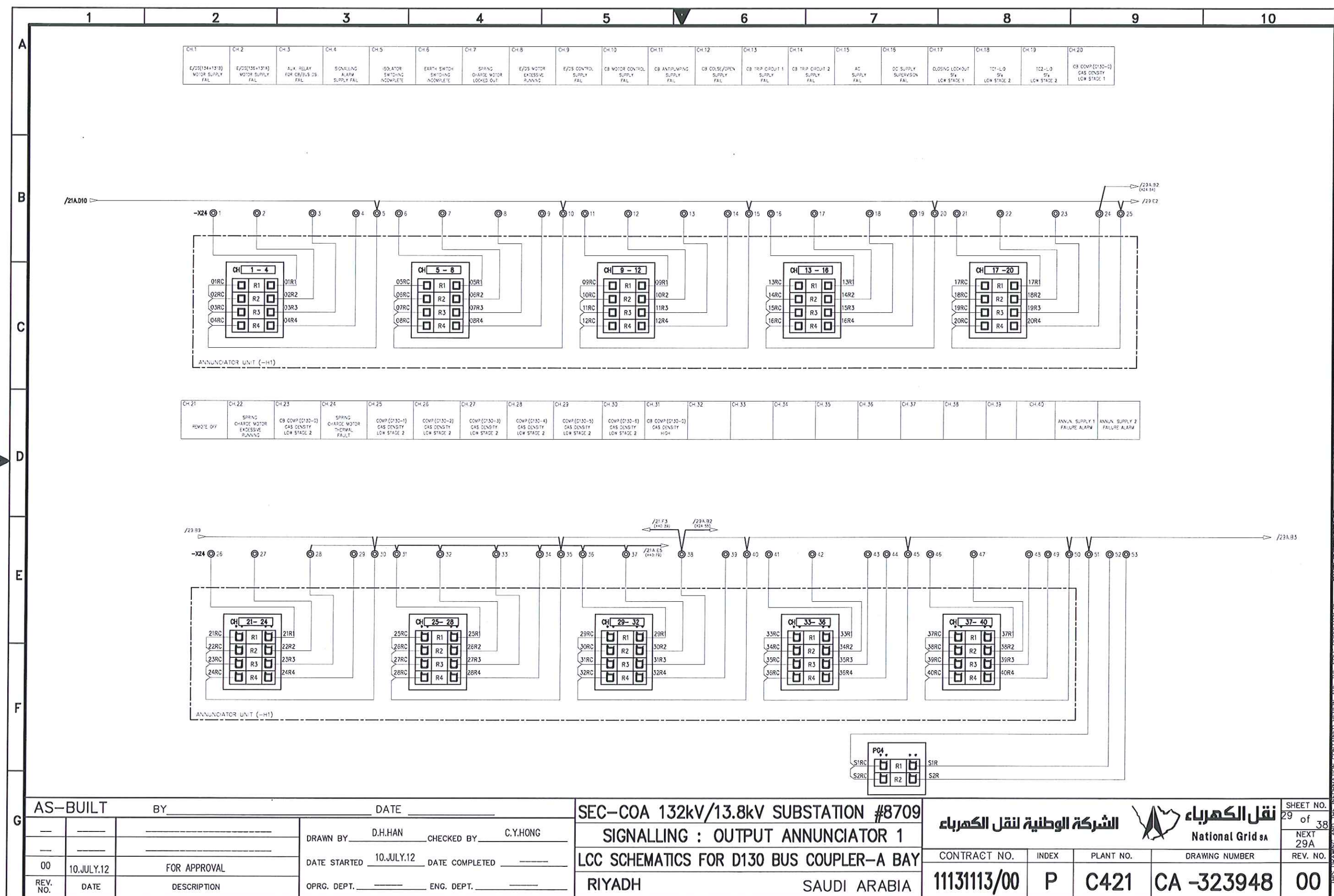
SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid sa		SHEET NO.
CONTRACT NO.		INDEX		PLANT NO.		28 of 38
11131113/00		P		C421		NEXT
DRAWING NUMBER		CA -323948		REV. NO.		29
00		00		00		REV. NO.

SEC-D (2004/10)

EDMS VECTOR SECE00

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AS-BUILT		BY	DATE
00	10.JULY.12	FOR APPROVAL	
REV. NO.	DATE	DESCRIPTION	

DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG
DATE STARTED	10.JULY.12	DATE COMPLETED	
OPRG. DEPT.		ENG. DEPT.	

SEC-COA 132kV/13.8kV SUBSTATION #8709

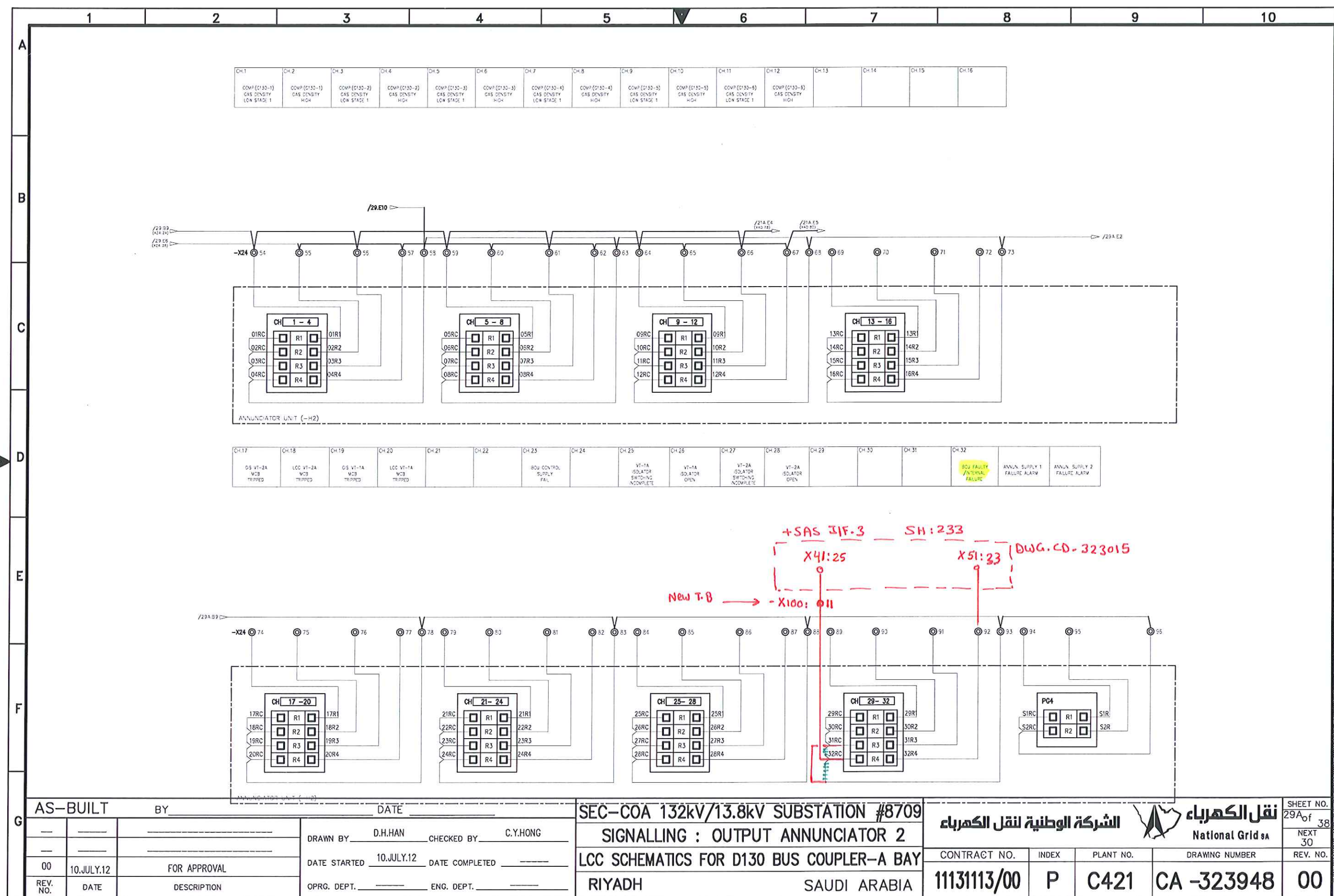
SIGNALLING : OUTPUT ANNUNCIATOR 1

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		National Grid	
CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER
11131113/00	P	C421	CA -323948

SHEET NO.	29 of 38
NEXT	29A
REV. NO.	00



AS-BUILT	BY	DATE
00	10.JULY.12	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION
00	10.JULY.12	FOR APPROVAL

DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG
DATE STARTED	10.JULY.12	DATE COMPLETED	
OPRG. DEPT.		ENG. DEPT.	

SEC-COA 132kV/13.8kV SUBSTATION #8709

SIGNALLING : OUTPUT ANNUNCIATOR 2

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

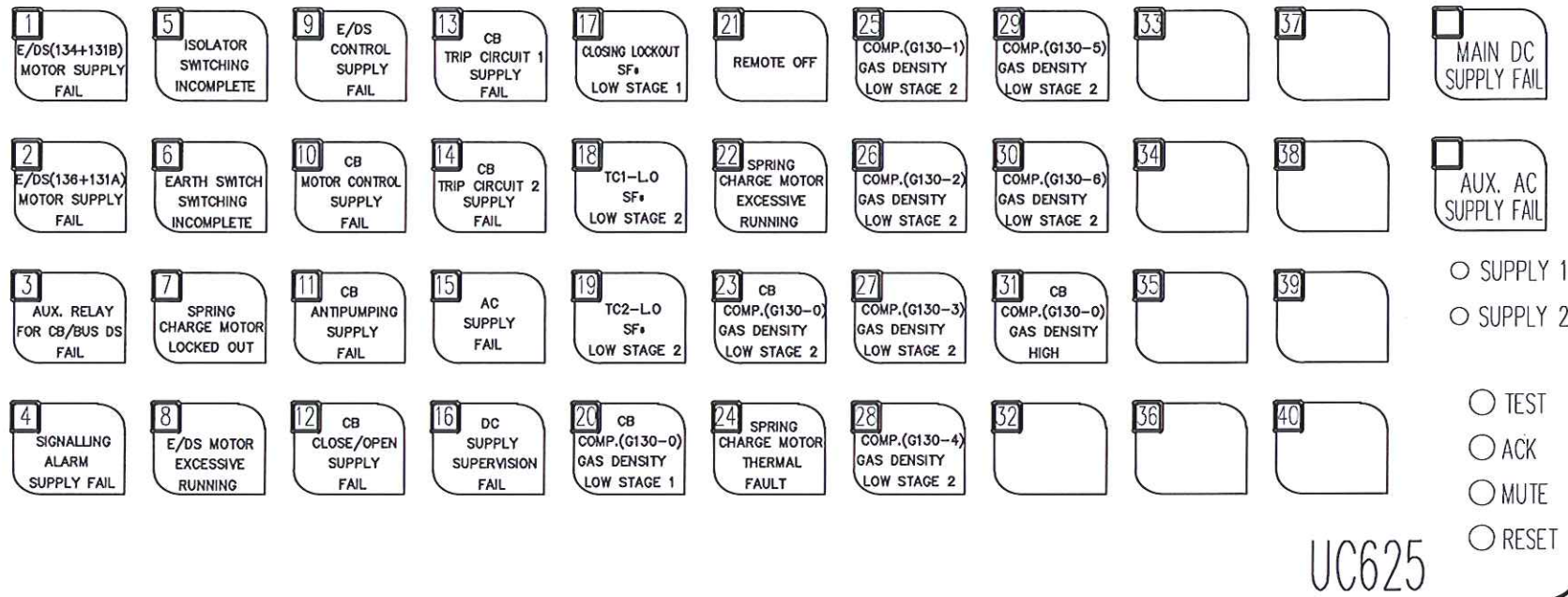
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		National Grid sa	
CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER
11131113/00	P	C421	CA -323948

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NEXT	30
REV. NO.	00

-H1

RTK



CH.NO.	DELAY (SEC.)	LED COLOR	CH.NO.	DELAY (SEC.)	LED COLOR
1	5mS	YELLOW	17	5S	YELLOW
2	5mS	YELLOW	18	5S	YELLOW
3	5mS	YELLOW	19	5S	YELLOW
4	5mS	YELLOW	20	5S	YELLOW
5	5S	YELLOW	21	5mS	YELLOW
6	5S	YELLOW	22	5mS	YELLOW
7	5mS	YELLOW	23	5S	YELLOW
8	5mS	YELLOW	24	5mS	YELLOW
9	5mS	YELLOW	25	5S	YELLOW
10	5mS	YELLOW	26	5S	YELLOW
11	5mS	YELLOW	27	5S	YELLOW
12	5mS	YELLOW	28	5S	YELLOW
13	5mS	YELLOW	29	5S	YELLOW
14	5mS	YELLOW	30	5S	YELLOW
15	5mS	YELLOW	31	5S	YELLOW
16	5mS	YELLOW	32	5mS	YELLOW

- 1) MAKER : RTK INSTRUMENTS
- 2) MODEL : UC625-40YW-HH-024-R-M3
- 3) SUPPLY VOLTAGE
 - MAIN SUPPLY : DC 125V
 - AUX. SUPPLY : AC 230V
- 4) LED COLOR : YELLOW
- 5) DELAYED TIME
 - CH5, CH6, CH17~CH20, CH23, CH25~CH31 : 5 SEC.
 - OTHERS : 0 SEC.

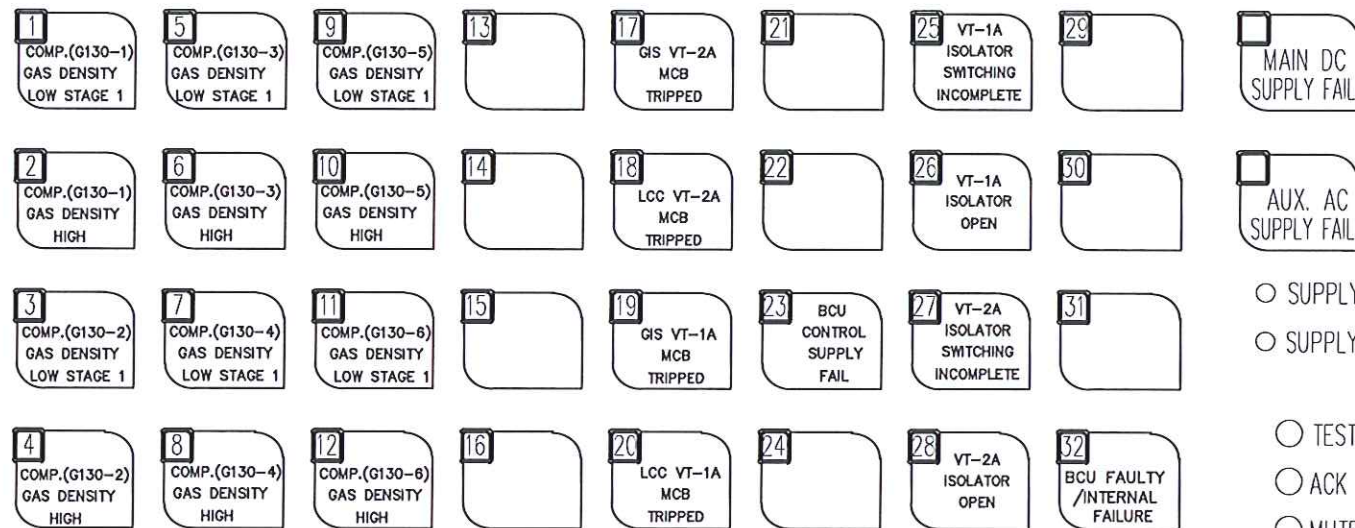
AS-BUILT	BY	DATE
00	10.JULY.12	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

SEC-COA 132kV/13.8kV SUBSTATION #8709
SIGNALLING : VIEW ANNUNCIATOR 1,2
LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY
RIYADH SAUDI ARABIA

CONTRACT NO.	INDEX	PLANT NO.	DRAWING NUMBER	REV. NO.
11131113/00	P	C421	CA -323948	00

-H2

RTK



UC625

CH.NO. DELAY (SEC.) LED COLOR			CH.NO. DELAY (SEC.) LED COLOR		
1	5S	YELLOW	17	5mS	YELLOW
2	5S	YELLOW	18	5mS	YELLOW
3	5S	YELLOW	19	5mS	YELLOW
4	5S	YELLOW	20	5mS	YELLOW
5	5S	YELLOW	21	5mS	YELLOW
6	5S	YELLOW	22	5mS	YELLOW
7	5S	YELLOW	23	5mS	YELLOW
8	5S	YELLOW	24	5mS	YELLOW
9	5S	YELLOW	25	5S	YELLOW
10	5S	YELLOW	26	5mS	YELLOW
11	5S	YELLOW	27	5S	YELLOW
12	5S	YELLOW	28	5mS	YELLOW
13	5mS	YELLOW	29	5mS	YELLOW
14	5mS	YELLOW	30	5mS	YELLOW
15	5mS	YELLOW	31	5mS	YELLOW
16	5mS	YELLOW	32	5mS	YELLOW

- 1) MAKER : RTK INSTRUMENTS
- 2) MODEL : UC625-32YW-HH-024-R-M3
- 3) SUPPLY VOLTAGE
 - MAIN SUPPLY : DC 125V
 - AUX. SUPPLY : AC 230V
- 4) LED COLOR : YELLOW
- 5) DELAYED TIME
 - CH1~CH12, CH25, CH27 : 5 SEC.
 - OTHERS : 0 SEC.

AS-BUILT

BY _____ DATE _____

DRAWN BY D.H.HAN CHECKED BY C.Y.HONG

DATE STARTED 10.JULY.12 DATE COMPLETED _____

OPRG. DEPT. _____ ENG. DEPT. _____

SEC-COA 132kV/13.8kV SUBSTATION #8709

SIGNALLING : FRONT COMMENT ANNUNCIATOR 1,2

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء
National Grid sa

CONTRACT NO.

INDEX

PLANT NO.

DRAWING NUMBER

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C421

CA -323948

SHEET NO.

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NEXT

32

REV. NO.

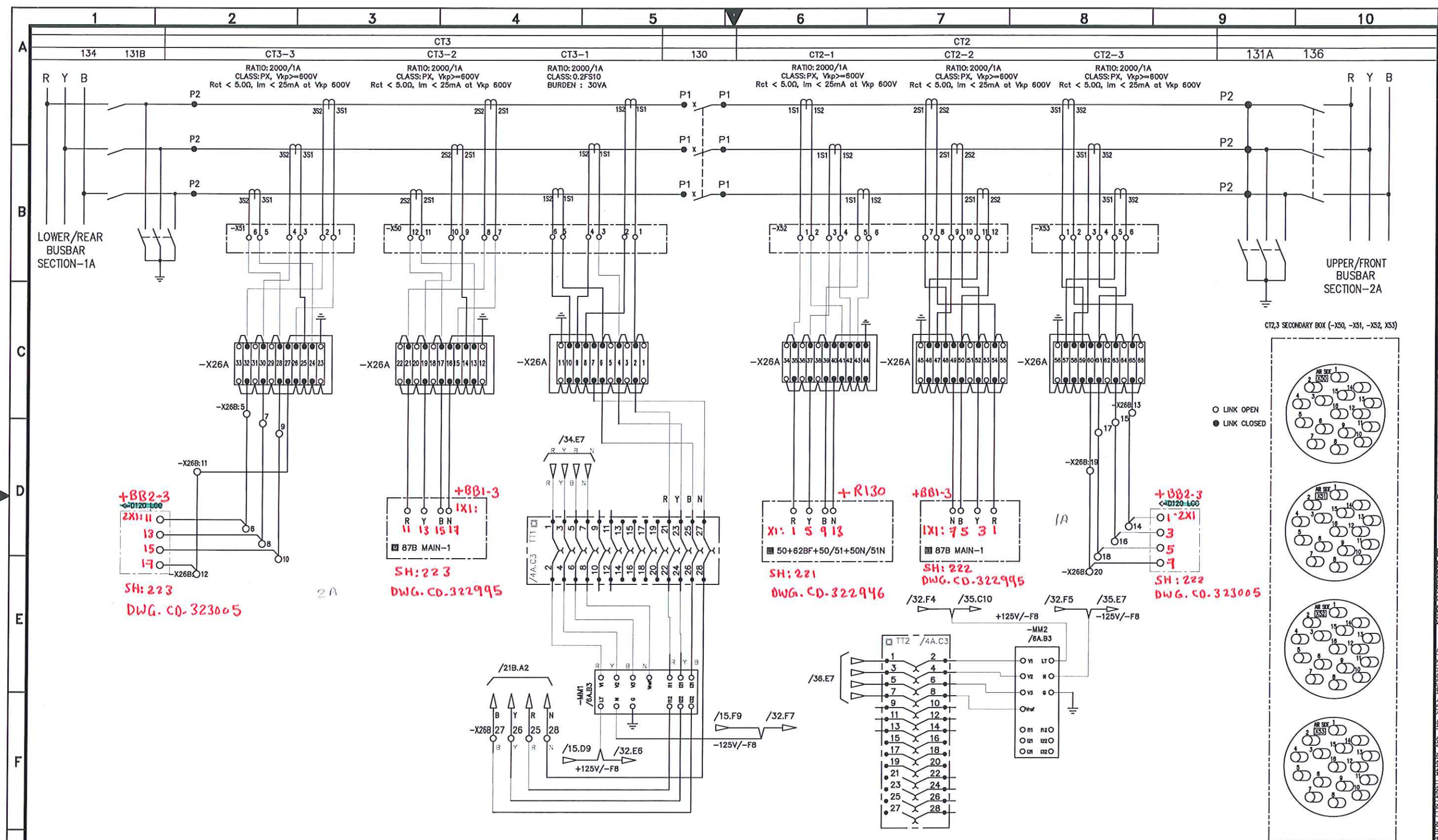
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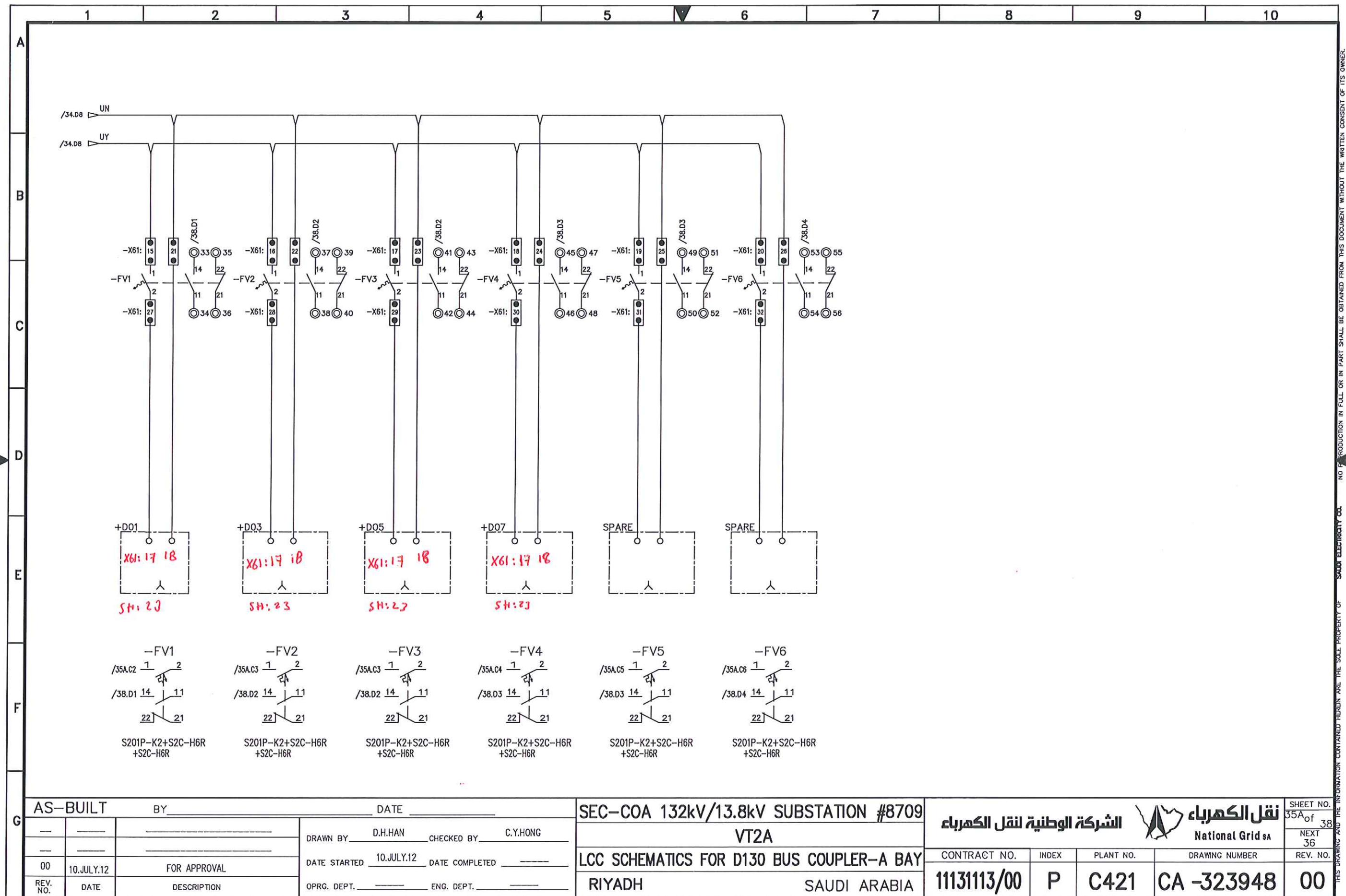
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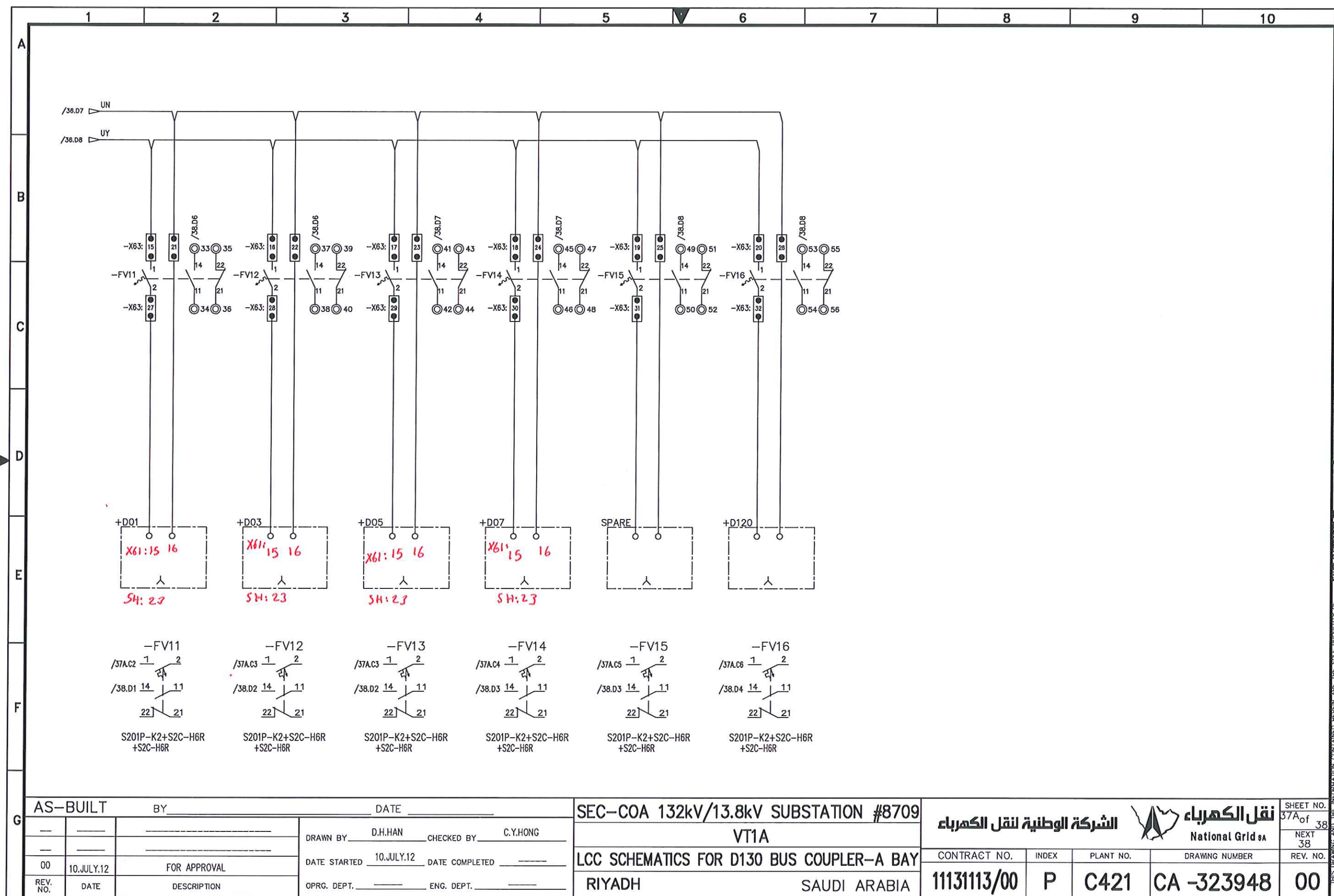
VECTOR

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AS-BUILT		BY	DATE	SEC-COA 132kV/13.8kV SUBSTATION #8709		الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		SHEET NO. 32 of 38	
		DRAWN BY	D.H.HAN	CHECKED BY	C.Y.HONG	SHORT CIRCUIT AND DISCONNECTING CT'S (CT2,3) & CT SECONDARY BOX TERMINAL/LABELLING		National Grid sa		NEXT 33	
		DATE STARTED	10.JULY.12	DATE COMPLETED		LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY		CONTRACT NO. 11131113/00		REV. NO. 00	
		OPRG. DEPT.		ENG. DEPT.		RIYADH SAUDI ARABIA		INDEX P		DRAWING NUMBER CA -323948	
		REV. NO.	DATE	DESCRIPTION				PLANT NO. C421			





AS-BUILT

BY

DATE

SEC-COA 132kV/13.8kV SUBSTATION #8709

VT1A

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH

SAUDI ARABIA

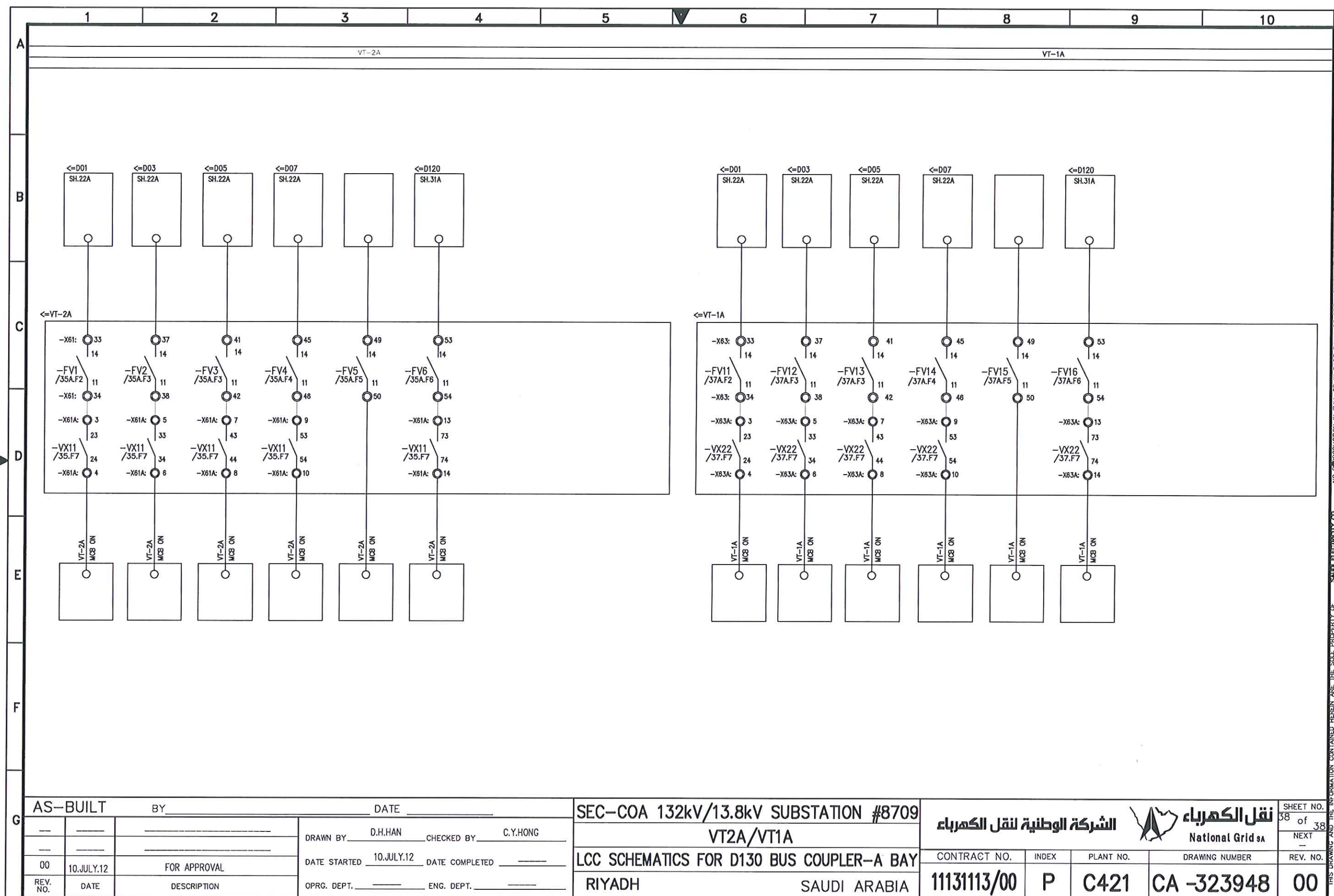
الشركة الوطنية لنقل الكهرباء		National Grid sa		SHEET NO. 37A of 38
CONTRACT NO. 11131113/00		INDEX P		NEXT 38
PLANT NO. C421		DRAWING NUMBER CA -323948		REV. NO. 00

SEC-D (2004/10)

EDMS

VECTOR

SECE00



AS-BUILT

BY

DATE

SEC-COA 132kV/13.8kV SUBSTATION #8709

VT2A/VT1A

LCC SCHEMATICS FOR D130 BUS COUPLER-A BAY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



نقل الكهرباء
National Grid SA

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NEXT

REV. NO.

CONTRACT NO.

INDEX

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11131113/00

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